EFFECTIVENESS OF PROGRESSIVE MUSCLE RELAXATION TECHNIQUE ON QUALITY OF SLEEP AMONG PATIENTS WITH BREAST CANCER IN SELECTED HOSPITAL AT KANYAKUMARI.

DISSERTATION SUBMITTED TO

THE TAMILNADU DR.M.G.R.MEDICAL UNIVERSITY

CHENNAI

IN PARTIAL FULFILLMENT FOR THE DEGREE OF

MASTER OF SCIENCE IN NURSING

APRIL 2014

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BY

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SRI K. RAMACHANDRAN NAIDU COLLEGE OF NURSING

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A STUDY TO ASSESS THE EFFECTIVENESS OF PROGRESSIVE MUSCLE RELAXATION TECHNIQUE ON QUALITY OF SLEEP AMONG PATIENTS WITH BREAST CANCER SELECTED HOSPITAL AT KANYAKUMARI.

APPROVED BY THE DISSERTATION COMMITTEE ON _____

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

ABSTRACT

The Research Project, **"A Study to assess the effectiveness of progressive muscle relaxation technique on quality of sleep among patients with breast cancer in selected hospital, at Kanyakumari".** It was conducted in partial fulfillment of the requirement for the Degree of Master of science in nursing at Sri K. Ramachandran Naidu College of Nursing which was affiliated to the Tamil Nadu Dr. M.G.R Medical University, Chennai during the year 2013-2014.

The Objectives of the study were:

- To assess the pretest and posttest level of quality of sleep among patients with breast cancer in experimental and control group.
- To find out the effectiveness of progressive muscle relaxation on level of quality of sleep among patients with breast cancer in experimental group.
- To compare the pretest and posttest level of quality of sleep among patients with breast cancer in experimental group.
- To associate the posttest level of quality of sleep among patients with breast cancer in experimental and control group with their selected demographic variables such as age, marital status, education, occupation, monthly income, type of family, duration of illness.

All Hypotheses were tested at 0.05 level of significant

- The mean posttest level of quality of sleep among experimental group was significantly higher than the mean posttest level of quality of sleep in the control group.
- The mean posttest level of quality of sleep among experimental group was significantly higher than the mean pretest level of quality of sleep in the

experimental group.

- There was significant association between posttest level of quality of sleep in the experimental group and control group with their selected demographic variables. (age, marital status, education, occupation, monthly income, type of family and duration of illness

The framework of the study was based on the Modified Orlando's deliberative helping art of clinical nursing theory

Totally sixty patients were selected from the hospital. Thirty were selected to experimental group, thirty patients were selected to control group. The sample was selected based on the criteria for sample selection. According to purposive sampling technique the patients were selected to the experimental group and control group. The experimental group received progressive muscle relaxation techniques for about 30-mins,one time a day for 7 sessions. Post test was carried out for the experimental group and control group on 8th day by using groningen sleep quality scale.

The Research design was Quasi experimental – Pretest and Posttest control group design.

The setting of the study was kanyakumari medical mission hospital at Kanyakumari district. It was situated about 110kms from Sri.K. Ramachandran Naidu College of Nursing at Tirunelveli District.

The descriptive and inferential statistics were used to analyze the data.

The significant Findings of the study were

On analysis of frequency and percentage distribution of demographic variables, majority of the patients 17 (56.66%) were between the age group of 31-40

years among breast cancer patients in experimental group, whereas in the control group 16(53.33%) of subjects were between the age group of 31-40 years.

With respect to education, majority of the patients 14 (46-66%) were having primary school education in the experimental group, whereas in the control group 13(43.33%) of subjects were having primary school education. With regard to type of family, majority of patients 21 (70%) were belongs to nuclear family in the experimental group, whereas in the control group 22(73.33%) of subjects were belongs to nuclear family.

With regard to occupation, majority of patients 10(33.33%) of them were unemployed in the experimental group, whereas in the control group 11(36.66%) of subjects were unemployed. Regarding the monthly income, majority of patients 9(30%) of them were earning Rs.2000/-to 4000/- in the experimental group where in the control group 14(46.66%) of subjects were earning below Rs.2000/-

Regarding the marital status, majority of patients 30(100%) of them were married in the experimental group, whereas in the control group, majority of patients 21(70%) of them were married. With regard to duration of illness, majority of patients 26 (86.66%) were belongs to 2-3 years of illness in the experimental group, whereas in the control group majority of patients, 17(56.66%) were belongs to 2-3 years of illness.

There was a significant difference between the mean score in the level of quality of sleep among experimental group before and after the exercise of progressive muscle relaxation technique. Justification undertaken for this study was to give progressive muscle relaxation for improvement of quality of sleep and to

determine its effectiveness, so that progressive muscle relaxation can be used in future for all the breast cancer patients for health promotion.

On analysis of mean score of quality of sleep among experimental group was 26.73 and control group was 34.36 after interventions. Standard deviation of level of quality of sleep after intervention among experimental group was 7.63 and control group was 8.24 and calculated‘t’ value was 3.703. It shows significant difference in between experimental group and control group.

There was no significant association between the posttest level of quality of sleep in the experimental group and control group with their demographic variables such as age, marital status, education, occupation, monthly income, type of family and duration of illness.

Based on the findings of the study, it is recommended that,

Based on the findings of the present study the following recommendations were made:

1. Similar study can be conducted with large samples for better generalisation.
2. The study can be conducted to assess the knowledge and practice of nurses with regard to progressive muscle relaxation technique for quality of sleep in patients with breast cancer.
3. A comparative study can be conducted by using progressive muscle relaxation technique on improvement of quality of sleep among breast cancer patients.
4. The same study can be repeated by using the true experimental design.

As a nurse working in hospital has a vital role to provide effective nursing care for the patients. The nurses are need to develop their knowledge and skills in management of breast cancer and providing care to the breast cancer patients, and to use wide variety of interventions in order to improve quality of sleep in such patients.

CONCLUSION

The key conclusion that there was a significant difference on the level of quality of sleep among patients with breast cancer who received progressive muscle relaxation technique. It was easy to apply and potentially risk free intervention. Thus an exercise of progressive muscle relaxation technique was effective to quality of sleep among breast cancer patients.

CHAPTER-I

INTRODUCTION

"That some good can be derived from every event is a better proportion that everything happens for the best, which is assuredly does not."

-Albert Einstein

BACKGROUND OF THE STUDY

Sleep, is a behavioral state that is a natural part of every individual's life. We spend about one-third of our lives asleep. Nonetheless people generally know little about the importance of this essential activity. Sleep is not just something is to fill time when a person is inactive. Sleep is a required activity, not an option. Even though the precise functions of sleep remain a mystery. Sleep is important for normal motor and cognitive function. We all recognize and feel the need to sleep. After sleeping, we recognize changes that have occurred as we feel rested and more alert. Sleep actually appears to be required for survival **(Lintz 2003)**

It is a multidimensional patterned phenomenon characterized by reduction in awareness of and interactions with the environment and Lowered motility and muscular activity and Partial or complete absence of voluntary behavior and consciousness. It is an active,energizing,blissful activity which everybody enjoys. It has shown to be an essential component of health, affecting the well being and quality of life of individuals. **(Jenson and Herry 2003)**

In general, sleep is increasingly recognized important to public health ,with sleep insufficiency linked to motor vehicle crashes, industrial disasters, and medical

and other occupational error. Unintentially falling asleep nodding off while driving and having difficulty performing daily tasks because of sleepiness all may contribute to these hazardous outcome. Persons experiencing sleep insufficiency are also more likely to suffer from chronic disease such as hypertension,diabetes,depression,and obesity as well as from cancer, increased mortality, and reduced quality of life and productivity. Sleep insufficiency may be caused by broad scale societal factors such as round the clock access to technology and work schedules, but sleep disorders such as insomnia or obstructive sleep apnea also play an important role. An estimated 50-70 million US adults have sleep or wakefulness disorder. **(Ewartck et al 2004)**

Breast cancer is an uncontrolled growth of breast cells. The term “breast cancer” refers to a malignant tumor that has developed from cells in the breast. Breast cancer occurs anywhere in the breast, but most are found in the upper quadrant where most breast tissue is located. Usually breast cancer either begins in the cells of the lobules, which are the milk-producing glands, or the ducts, the passages that drain milk from the lobules to the nipple. Less commonly, breast cancer can begin in the stromal tissues, which include the fatty and fibrous connective tissues of the breast. **(Phipps 2004)**

Breast cancer is a type of cancer originating from breast tissue, most commonly from the interlining of milk ducts or the lobules that supply the ducts with milk. Cancers originating from ducts are known as ductal carcinomas, while those originating from lobules are known as lobular carcinomas. Breast cancer occurs in humans and other mamals, while the overwhelming majority of human cases occur in women. **(Merk 2004)**

Progressive muscle relaxation teaches how to relax muscles through a two step process. First, systematically tense particular muscle groups in body such as neck and shoulders. Next, release the tension and notice how muscles feels when relax them. This exercise will help to lower overall tension and stress levels and help relax when are feeling anxious. It can also help reduce physical problems such as stomachaches and headache, as well as improve sleep. **(Jacobson 2006)**

Worldwide, breast cancer accounts for 22.9% of all cancers (excluding non-melanoma skin cancers) in women. In 2006, breast cancer caused 458,503 deaths worldwide (13.7% of cancer deaths in women). Breast cancer is more than 100 times more common in women than in men, although men tend to have poorer outcomes due to delays in diagnosis. **(Lacroix M 2006)**

Prognosis and survival rates for breast cancer vary greatly depending on the cancer type, stage, treatments and geographical location of the patient. Survival rates in the Western world are high. For example, more than 8 out of 10 women (84%) in England diagnosed with breast cancer survive for at least 5 years. In developing countries, however, survival rates are much poorer. **(Rishwa 2008)**

Some genetic susceptibility may play a minor role in most cases. Overall genetics is believed to be the primary cause of 5-10% of all cases. In those with zero, one or two affected relatives, the risk of breast cancer before the age of 80 is 7.8%, 13.3% and 21.1% with a subsequent mortality from the disease of the 2.3%,4.2% and 7.6% respectively. In those with a first degree relative with the disease the risk of cancer between the age of 40 and 50 is double that of the general population. **(Minnesota 2008)**

NEED FOR THE STUDY

In the United States,10 to 20 percent of patients with breast cancer and patients with ovarian cancer have a first-or second-degree relative with one of these diseases. The familial tendency to develop these cancers is called hereditary breast – ovarian cancer syndrome. About half of hereditary breast-ovarian cancer syndromes involve unknown genes. **(Levin 2011)**

Women may reduce their risk of breast cancer by maintaining a healthy weight, drinking less alcohol, being physically active and breast feeding their children. These modifications might prevent 38% of breast cancers in the US, 42% in the UK, 28% in Brazil and 20% in China. The benefits with moderate exercise such as brisk walking are seen at all age groups including postmenopausal women. Marine omega-3 polyunsaturated fatty acids appear to reduce the risk. **(Saunder 2010)**

Indications of breast cancer other than a lump may include thickening different from the other breast tissues, one breast becoming larger or lower, a nipple changing position or shape or becoming inverted, skin puckering or dimpling, a rash on or around a nipple, discharge from nipples, constant pain in part of the breast or armpit, and swelling beneath the armpit or around the collarbones. Pain is an unreliable tool in determining the presence or absence of breast cancer but may be indicative of other breast health issues. **(Dorothi 2010)**

Worldwide breast cancer is the most common invasive cancer in women.(The most common form of cancer is non-invasive non –melanoma skin cancer; on – invasive cancers are generally easily cured, cause very few deaths, and are routinely

excluded from statistics). Breast cancer comprises 22.9% of invasive cancers in women and 16% of all female cancers. **(Levin 2009)**

Breast cancer is the most common cancer in women worldwide, comprising 16% of all female cancers. It is estimated that 519000 women died in 2004 due to breast cancers and although breast cancer is thought to be a disease of the developed world, a majority (69%) of all breast cancer deaths occurs in developing countries**. (WHO Global Burden of Disease 2009)**

Breast cancer is also principal cause of death from cancer among women globally. Despite the high incidents rates, in Western countries,89% of women diagnosed with breast cancer are still alive 5 years after their diagnosis, which is due to detection and treatment. **(Parkin 2008)**

In the US, breast cancer is the most common cancer amongst women and in 8 women in the US have a chance of developing breast cancer in their life time. In India, the overall incidence of breast cancer is less as compared to the US. Some workers have put it around 1 in 30 or so. In the year 2008, there were about 1,82,000 breast cancer cases reported in the US, whereas in India 1,15,000 new cases were diagnosed. This implies that though because of India population, the percentage of total women affected seems less, the breast cancer burden in India has almost reached about 2l3rds of that of the US and is steadily rising. **(Breast cancer incidence comparison: India - US 2008)**

In the battle of the female cancers, breast cancer has overtaken cervix as the top cancer among women in Chennai. A comparative study between the incidence of the two conditions in 1982-1987 and 2009-2010 makes this clear. In 1982-87, the

incidence of cervical cancer in the Registry was 44.3 per 1,00,000 population. Comparatively, the breast cancer incidence was 19.1. In 2009-2010, the cervical cancer incidence had dropped to 19.3, while that of breast cancer rose to 35.8 per 1,00,000 **(Ramya kannan 2008)**

The incidence rates vary greatly worldwide, with age standardized rates as high as 99.4 per 100 000 in North America. Eastern Europe, South America, Southern Africa, and Western Asia have moderate incidence rates, but these are increasing. The lowest incidence rates are found in most African countries but here breast cancer incidence rates are also increasing **(Rethin 2007)**

Breast cancer survival rates vary greatly worldwide, ranging from 80% or over in North Ameria, Sweden and Japan to around 60% in middle-income countries and below 40% in low income countries. The low survival rates in less developed countries can be explained mainly by the lack of early detection programmes resulting in a high proportion of women presenting with late-stage disease, as well as by the lack of adequate diagnosis and treatment facilities. **(Coleman et al 2007)**

The research article published in the journal says that when the yoga and progressive muscle relaxation are compared for their effectiveness in quality of sleep, it was found that the progressive muscle relaxation is much effective in quality of sleep when compared to yoga. It is because progressive muscle relaxation is easy to learn and can be done easily when compared to yoga. **(Complementary Therapies in Medicine 2003)**

Based on the review of literature, prevalence and incidence of breast cancer in various regions and the investigator practice in the field of hospital, felt that

progressive muscle relaxation may be beneficial to the patients with breast cancer. It is simple procedure carry out in the day life , so the investigator has selected the study and provided by evidence based approach.

STATEMENT OF THE PROBLEM

A study to assess the effectiveness of progressive muscle relaxation technique on quality of sleep among patients with breast cancer in Kanyakumari medical mission hospital in Neyyoor at Kanyakumari.

OBJECTIVES OF THE STUDY

- To assess the pretest and posttest level of quality of sleep among patients with breast cancer in experimental and control group.
- To find out the effectiveness of progressive muscle relaxation on quality of sleep among patients with breast cancer in experimental group.
- To compare the pretest and posttest level of quality of sleep among patients with breast cancer in experimental group.
- To associate the posttest level of quality of sleep among patients with breast cancer experimental and control group with this selected demographic variables such as age, marital status, education, occupation, monthly income, type of family, duration of illness

HYPOTHESES

H1:The mean posttest level of quality of sleep among experimental group will be significantly higher than the mean posttest level of quality of sleep in the control group.

H2:The mean posttest level of quality of sleep will be significantly higher than the mean pretest level of quality of sleep in the experimental group.

H3:There will be significant association between the posttest level of quality of sleep among experimental group and control group with their selected demographic variables such as age, marital status, educations and occupation, monthly income, type of family, and duration of illness.

OPERATIONAL DEFINITION

Assess:

It refers to systematically and continuously collecting, validating and communicating the patient data regarding quality of sleep among patients with breast cancer which was assessed by Groningen sleep quality scale.

Effectiveness:

It refers to an outcome of progressive muscle relaxation technique on quality of sleep among patients with breast cancer.

Progressive muscle relaxation technique:

It refers to the therapy involves tensing and relaxation of major muscle groups of shoulders, arms, back, abdomen, chest, butt, thighs, calves and aims to reduce feelings of tension, to lower stress, to induce relaxation and to maintain normal sleep. Progressive muscle relaxation technique was given for 30 minutes every night continuously for 7 days.

Breast cancer patients:

It refers to the patients having breast cancer between the age group of 25-60 years.

Quality of sleep:

It refers to the nature of sleep as experienced and reported by the patients as measured by Groningen sleep quality scale.

ASSUMPTION:

- Patients who are admitted in hospital may prone to have sleep problems.
- Progressive muscle relaxation will be effective in promoting quality of sleep among breast cancer patients admitted in medical ward.
- Adequate amount of sleep is necessary for optimum physical and psychological functioning of an individual.
- Sleep patterns are almost invariably disturbed by illness.

DELIMITATIONS:

- The study is delimited to selected hospitals.
- The study is delimited to a period of four weeks.
- The study is delimited to a sample of 60 breast cancer patients.
- The study is delimited to age group of 25-60 years.

PROJECTED OUTCOME

The findings of the study will help the nurses to plan and use progressive muscle relaxation in quality of sleep among patients with breast cancer.

The findings of the study will help the nurse to plan the educational programme on breast cancer.

Progressive muscle relaxation will improve the quality of sleep and thereby improving comfort and feeling of pleasant mind and physical well being.

CONCEPTUAL FRAME WORK

The conceptual frame work for research study presents the measure on which the purpose of the proposed study is based. The framework provides the perspective from which the investigator views the problem.

The study is based on the concept that the effectiveness of progressive muscle relaxation on quality of sleep among breast cancers who has impaired sleep.

The investigator adopted the "Modified Orlando's Deliberative Nursing Process Theory.

Nursing process is based on an individual's action. It is used by a nurse to meet persons need for help: meeting these improves the person's behavior.

According to Orlando's a person is viewed as a human being who exhibits verbal and nonverbal behavior. Health is observed as feeling of adequacy and well being and freedom from mental and physical discomfort. Nursing action is dynamic and responsive to changes in a patient's situation.

The components of Orlando's Nursing process theory are:

- Patient behavior
- Nurse action
- Patient reaction

1. Patient behavior

Nursing process theory patient behavior: no matter how insignificant, may represent a cry for help. The persons who not resolve a need feels, helpless and the

persons behavior reflects this feeling. It can be verbal or nonverbal. Here the patient behavior includes subject's age, education, occupation, type` of family, monthly income, marital status, duration of illness. The main aspect of patient behavior is the assessment of quality of sleep level and it incorporated with the nursing action and patient reaction.

2. Nurses action

In this model nurse action refers as whatever the nurse says or does to benefit the patient. It occurs after the nurse interpret with the patient behavior. In the present study it includes demonstrating and displaying progressive muscle relaxation video to persons with mild and moderate sleep problem and making them to perform the progressive muscle relaxation.

3. Patient reaction

According to Orlando patient reaction is refers to the action that are evaluated the effectiveness immediately after the nursing activity.

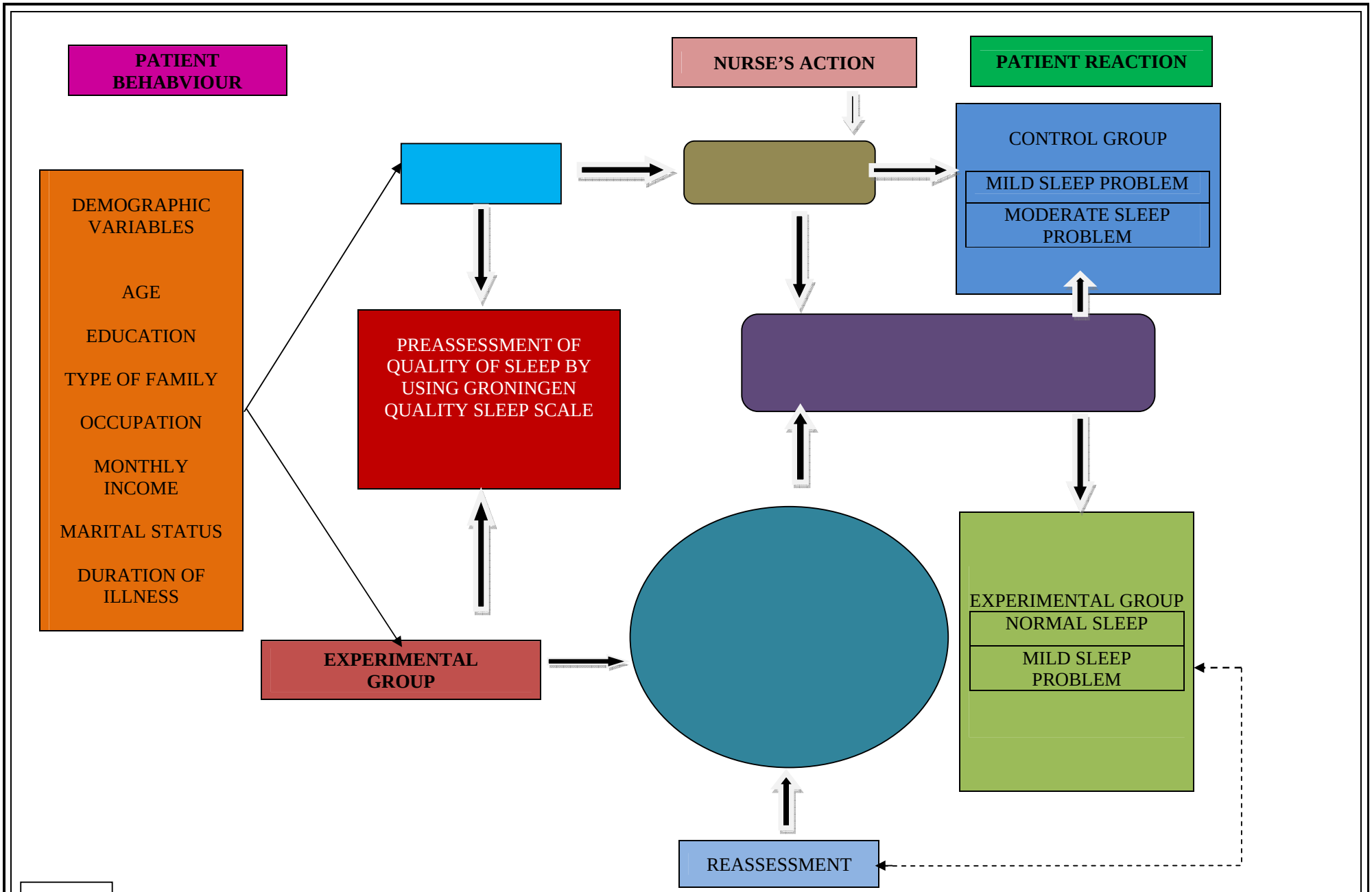

Figure : 1 MODIFIED ORLANDO'S DELIBERATIVE NURSING PROCESS THEORY (2010)

CHAPTER-II

REVIEW OF LITERATURE

Review of literature is defined as a critical summary of review on a topic of interest, often prepared to put a research problem in contest **(Polit& Beck 2006).**

The review of literature in the research report is a summary of current knowledge about a particular practice problem and includes what is known and not known about the problem. The literature is reviewed to summarize knowledge for use in practices or to provide a basis for conducting a study. **(Burns 2007)**

Section A: Studies related to prevalence and risk factors of breast cancer.

Section B: Studies related to factors affecting sleep among breast cancer patients.

Section C: Studies related to effectiveness of progressive muscle relaxation on sleep.

SECTION A: STUDIES RELATED TO PREVALENCE AND RISK FACTORS OF BREAST CANCER

Gary E Feaser (2013) conducted a study on prevalence of risk factors, lifetime risk and age at onset of breast cancer. They evaluated that the relationship between exposure variables and lifetime risk and mean age at diagnosis of breast cancer in subjects from the Adventist Health study who developed breast cancer before the age of 91yrs. Multiple decrement life-table analysis was used. This study provided data from 20,341 women followed for one year. In the total population,30yrs-old women with a parenteral history of any cancer or a maternal history of breast cancer had respectively 72% (p=0.002) and 98% (p=0.03) higher life time risk of breast cancer. Thirty-year-old women who had their first delivery after

age 24yrs or body mass indices above the 50% had respectively 53% (p=0.007) or 57% (p=0.01) greater lifetime risk of breast cancer. Women who examined in frequently had a 27% higher life time risk (p-0.09) and as age at diagnosis of breast cancer 6.6yrs younger (p=0.005 than other women).Standardize risk factors account for substantial increases in life time risk of breast cancer and may be associated with diffuse in age at diagnosis.

Adetifa Felicia (2010) conducted a cross sectional study on prevalence and trends in breast cancer in Lagos State Nigeria. The study examined the trends in the prevalence of breast cancer in Lagos state Nigeria. A sample of 1000 subjects was taken from a population consisting of women between the ages of 25 to 65 yrs spread across the 20 Local Government Areas of the state. Fifty questionnaire were distributed in each local government area. Employing statistical tools such as ANOVA, chi-square that Duncan multiple range test, it was found that prevalence of breast cancer diffuse across age groups with the age range 25-65 having the highest prevalence.

Legos m (2008) conducted a cross sectional study on prevalence of overweight and obesity are risk factors of breast cancer. Over weight and obesity, as measured by high body mass index, moderately increases the risk of post menopausal breast cancer and is one of the few modifiable risk factors for breast cancer. BMI is calculated by dividing weight in kg by height in meters squared. A body mass index under 18.5 is classified as underweight 18.5-24.9 as healthy weight,25-29.9 as overweight and 30 or over as obese. Compared to lean (BMI 22.5-24.9) women, overweight post-menopausal women have a 10-20% increased risk of breast cancer, and obese post-menopausal women 30% increase in risk. Women with a body mass

index under 22.5 have a 15% reduction in risk compared to women with a body mass index of 22.5-24.9%.In contrast, obese pre-menopausal women have a 20% reduction in breast cancer risk.

Ruskin (2006) conducted a study on prevalence of endogenous hormones risk factors for breast cancer. Higher levels of endogenous hormones have been hypothesized to increase breast cancer risk. Studies show that post-menopausal women with the highest levels of the estrogen and testosterone have 2-3 times the risk of women with the lowest levels. The link between these hormones and pre-menopausal breast cancer risk is less clear-higher levels of the hormone prolactin have been associated with are increased risk of breast cancer, particularly estrogen-receptor-positive tumors. Having higher levels of insulin has been associated with an increased risk of post-menopausal breast cancer in women not taking hormone replacement therapy. A link between high insulin levels and breast cancer right explain the 20% increased risk of breast cancer for women with diabetes shown in a meta analysis. Insulin-like growth factor is positively associated with breast cancer risk.

Starlin (2004) conducted study on prevalence of endocrine related risk factors for breast cancer. Ovarian and other hormones are major determinants of breast cancer risk. Particularly important is the accumulative exposure of the breast to circulating levels of the ovarian hormone estradiol and progesterone. A number of breast cancer risk factors can be understood in light of how they affect the women's hormone profiles. Age is a marker for the onset and cessation of ovarian activity. Racial difference in hormone profiles correlate with breast cancer incidence pattern. Age at menarche not only serves as the chemo logical indicator of the onset of ovarian

activity, but as a predictor of ovulatory frequency during adolescence and hormone levels in young adults, and has a long-lasting influence on risk. Age at menarche, another established breast cancer risk factors marks the cessation of ovarian activity. Pregnancy history and lactation experience also are hormonal markers of breast cancer risk. Post menopausal obesity, which is associated with higher levels of estrogen following cessation of ovarian activity, increases breast cancer risk.

Rabia Tariq (2004) conducted study to determine the prevalence of risk factors of female breast cancer in Denmark. The extent to which changes in prevalence of risk determinants for female breast cancer could explain the temporal variation in incidence was examined using incidence figures from Denmark for the years of 1943-1989. Significant increases in incidence were observed for more recent time periods and birth cohorts. Using deviance statistics from Poisson regression measures of variability explained only a small proportion of the increases in incidence could be accounted for by fertility rates, average age at menarche and exposure to exogenous hormones. Dietary factors on the other hand accounted for the greater proportion of the variation observed by time period or birth cohort. In particular, there was a strong positive association of incidence with alcohol consumption and negative association with carbohydrate intake.

Sandra Marisa Pelosi (2004) conducted a cross sectional study to determine the prevalence of risk factors for breast cancer in the city of Maringe, Parna state Brazil. The aim of this study was to identify the prevalence of the risk factors for breast cancer among women between 40 to 60yrs old in the city of Maringe. An analytical, exploratory and cross sectional study was carried out through a population research at homes in Maringe. The data were collected by home interviews, sterad

using the statistical package for the social sciences (SPSS) software and presented tables as absolute and relative frequency. The predominant ethical group was Caucasians with an average age of 52yrs.Among risk factors identical in the present study an expressive number of overweight women were found in this condition women's are getting breast cancer.

Robert weir (2004) conducted a cross sectional study to estimate the level of increased breast cancer among women defined risk factors as requested by the National screening unit (NSU), ministry of health, these risk factors included, previous breast cancer, at risk lesions such as atypical ductal hyperplasia, lobular carcinoma in situ, lobar hyperplasia and sclerosing, adenosis,increased breast density, childlessness, early menarche, post menopausal obesity, exogenous hormone use, dietary factors and alcohol. In this study they are selected 20 participants. They concluded these are all the factors are producing breast cancer.

Yamamot S (2003) conducted a study on prevalence of breast cancer risk factors in Japan. They conducted an internet survey using opt-in panels in women aged from 20-70 yrs. The survey items consisted of potential and proven risk factors for be such as age at menarche, menopausal status, premenopausal use of oral contraceptives, postmenopausal use of hormones, parity, height, alcohol consumption and finally history of breast cancer. Subjects comprised 2002 persons who were matched for sex, age and residential are with the National census in 2001.Statistically significant trends were observed for most factors. Age at menarche is becoming lower, age at first birth is higher, height is higher, the proportion of women who have given birth is smaller and the proportion of women who drink alcohol is larger. They showed a clear increase in the prevalence of risk factors for breast cancer.

Graham S A (2003) conducted a study to find out the prevalence of risk factors in the breast cancer patients at the University Hospital of the west indies. The records of one hundred and twenty consecutive patients diagnosed with carcinoma of the breast were examined between July 1999 and June 2000 in order to estimate the prevalence of established risk factors for this disease. Early menarche was present in 5.5% of patients, while 36 subjects (30%) were nalliparous and 6(5%) had a first live birth after age 30yrs. Four subjects had a previous biopsy with histological features of a typical hyperplasia. 15 subjects (12.5%) had one or more affected first degree relatives. 54% of subjects possessed none of the risk factors examined in this study while 36% had a single risk factor and 10% possessed two risk factors. There was significant clustering of risk factors in the group of aged 35yrs or less.

SECTION B: STUDIES RELATED TO FACTORS AFFECTING SLEEP AMONG BREAST CANCER PATIENTS

Sinha KC Huang et al (2012) conducted a cross sectional epidemiological study to examine the prevalence of breast cancer risk factors and to correlates among females in Tanazania. A total of 209 participants aged between 44 and 66 years were included in the study. A structured questionnaire was used to evaluate socio economic and life style characteristics. The age adjusted prevalence of obesity (BMI > 30) was 35% among women ($p = 0.003$) respectively. Among women, body mass index and weight gain were significantly correlated with sleeping problem. The result show that due to the body mass index and weight gain it will affect the sleep in breast cancer patients.

De Berry (2011) conducted a study to determine the breast engorgement on sleep among breast cancer associated with primigravida mothers. In this study they

are selected eighty and twenty consecutive patients diagnosed in primigravida mothers. In this they are analyzed by chi-square test and t'test and paired test. Early stage delivery it was present in 15% and after delivery it will more effective the percentage of this 45%. In this study conducted in Cancer center of Mumbai. The result showed that breast engorgement is one of the factors affecting on sleep and breast cancer.

Lakhera and John Cacioppo (2009) conducted a study by oncologists of the University of Chicago has shown that the toll of loneliness may be placid and unremarkable in breast cancer patients. In this study they are selected 46 participants. The researchers they reported their findings in August 2007 found that the more years one lives the more stressful situations one will experience. They also found that the lonelier breast cancer patients appeared sleep problem when compared to others.

Baired C et al (2008) conducted a study on evaluation of weight gain on sleep among breast cancer patients. This study provided data from 10,000 women are had weight gain due to breast cancer so they are not get the proper sleep at night and daytime also. It was a randomized clinical trial a experimental design. The study conducted at West La Fayette, on 28 women with breast cancer. An observation checklist was used to collect the data. ANOVA analysis was done. The study found weight gain also one of the factors for sleeping problem in breast cancer patients.

Yooh J (2007) conducted a study on determining on anxiety levels affecting the sleep among breast cancer. The method of this study a total of 46 patients who had been treated with breast cancer in the Cancer center of Tata hospital were recruited. Data were collected by means of a questionnaire, Patients Recognition Form (PRF),

State and Trait Anxiety inventory. The result of this the mean state anxiety score is 4.3 and 28.9 respectively ($p<0.001$). The result of the study is the anxiety level is more affecting sleep among breast cancer.

Martin et al (2006) conducted a study to determine on nausea and vomiting affecting the sleep among breast cancer patients associated with anticancer therapy. Subjects were 30 hematology patients with who were hospitalized and received chemotherapy treatment they are selected for 15 patients for experimental group and 15 patients for control group. They are administered the functional assessment of anticancer therapy. The data analyzed by ANOVAS test and t"test. The result showed that nausea and vomiting leads to statistically significant sleep apnea.

Davies BL (2005) conducted a study on pain and other symptoms of the breast cancer itself and side effects of treatment such as nausea, incontinence or hot flashes can also prevent patients from sleeping. In addition medications to relieve other symptoms or treat breast cancer can cause insomnia as a direct side effect inflammation. Often the result of various types of treatment and of the breast cancer itself. Also has been shown to affect the ability to sleep . The researcher concluded that pain and other symptoms of breast cancer affect the quality of sleep.

Chiang CD (2004) conducted a study on excessive fatigue is secondary to sleep disturbance in breast cancer patients . He told that excessive fatigue secondary to sleep disturbance may affect a patients tolerance of chemotherapy and that insomnia due to endocrine therapy may compromise treatment adherence. Recognition of factors that may predict for persistent sleep difficulties and early intervention to improve sleep and reduce hindrances to sleep has the potential to sleep

has the potential to improve breast cancer related outcome as well as physical and psychological health outcomes.

Onselen et al (2003) conducted a study to prospective evaluation of sleep disturbance and daytime sleepiness over time in female patients undergoing surgery for breast cancer. The initial assessment is done prior to breast surgery with subsequent assessments performed monthly for 6 months. The authors examine self reported changes in sleep disturbance and evaluate characteristics associated both baseline levels of sleep disturbance and with how symptoms change overtime. Not surprisingly sleep disturbance was common at baseline in these women with diagnosed breast cancer.

Ann Palliat Med (2003) conducted a study to find out the factors affecting sleep on cancer at the Cleveland clinic at USA. They described as most practicing oncologists are well aware, problems with sleep are frequent among women with breast cancer. Insomnia affects approximately one quarter of the general adult population with women most commonly affected. Sleep problems are particularly prevalent in premenopausal and post menopausal women and sleep pattern changes with normal aging. Other factors associated with sleep disturbance include pain, anxiety and stressful life events all of which are likely to be present in individuals diagnosed with breast cancer.

SECTION C:STUDIES RELATED TO EFFECTIVENESS OF PROGRESSIVE MUSCLE RELAXATION ON SLEEP

Lee DT, Woo J (2010) conducted a study to assess the effectiveness of progressive muscle relaxation on quality of sleep in older Chinese patients with breast

cancer. This study examined the effects of progressive muscle relaxation on improvement of sleep of Chinese patients with breast cancer. The method of this study is a longitudinal, randomized and controlled study. 59 patients were allocated to receive a progressive muscle relaxation program and 62 were provided with the placebo. The result of that the progressive muscle relaxation program was improved sleep in breast cancer patients.

Vildirin YK (2008) conducted on a comparative study to assess the effect of progressive muscle relaxation training on anxiety levels and quality of life in dialysis patients. A total of 46 patients who had been treated with dialysis in the Dialysis Center of Ege University Medical Faculty Hospital were recruited. Data were collected by means of a questionnaire. Patients recognition Form. State and Trait Anxiety Inventory and Qol Index for dialysis patients were used to collect the necessary data. All three forms were utilized prior to progressive muscle relaxation and 6 weeks after completion of progressive muscle relaxation technique. The results of the study demonstrate that progressive muscle relaxation technique for dialysis patients helps decrease state-and trait-anxiety levels and improve the quality of sleep.

Ancy Vincent (2008) studied the effective of progressive muscle relaxation on the quality of sleep among breast cancer in a selected hospital. The variables in the study were quality of sleep and progressive muscle relaxation. The sample size was 80. Convenience sampling technique was used. The tool was scale for general pattern of sleep and subjective assessment of quality of sleep scale. The method of data collection is through structural interview schedule and observation checklist. The statistical test used was descriptive and inferential statistics. Most of the people reside in health care institutions have inadequate sleep. It is more common in between the

age group of 70-79 yrs. Progressive muscle relaxation is very effective to promote the quality of sleep. The causes of disturbed sleep in breast cancer patients are noise, body pain and worry.

Cheung YL, Chang AM (2008) conducted a randomized study to assess the effectiveness of progressive muscle relaxation on quality of sleep after stoma surgery in colorectal cancer patients. A randomized controlled trail was used with repeated measures assessment over 10 weeks post stoma surgery. Fifty nine patients participated the study and were randomized to a control group receiving routine care (n=30) and an experimental group (n=30) receiving routine care and progressive muscle relaxation two teaching sessions and practice at home for the first 10 weeks. They were used sleep quality scale. Data analysis by 't'test and chi-square test. They concluded that the experimental group reported that better quality of sleep at 10 weeks, But not over time as compared to the control group.

Ronfroe KL (2006) conducted a experimental study to assess the effectiveness of progressive muscle relaxation on sleep among chronic obstructive pulmonary diseases. An experimental study was conducted of 20 outpatients with chronic obstructive pulmonary disease to measure the effect of progressive muscle relaxation on sleep. Patients were divided into a experimental group (n=2) and control group (n=8). Patients in the treatment group underwent 4 weekly sessions of live progressive muscle relaxation plus daily home practice with taped instructions. The effect of the independent variable, progressive muscle relaxation was measured during each session and at the end of 4 weeks. Measurements are made before and after treatment of the dependent variable, sleep. Instruments used were sleep quality

index scale. Data analysis by 't'test and ANOVAs. Progressive muscle relaxation was shown by treatment group to be more than control in improving sleep.

Kwekkeboom KL, Bmpus M (2005) conducted a comparative study to assess the effectiveness of guided imagery and progressive muscle intervention on sleep in bronchial asthma. Data from interviews conducted after a trail of guided imagery and progressive muscle relaxation interventions were analyzed to compare patients perceptions of treatment effects with observed changes in sleep scores and to explore patients ideas about factors that contributed to the effectiveness of each intervention. Post study interviews were conducted with 26 hospitalized patients with bronchial asthma who had completed trials of guided imagery and progressive muscle relaxation. The results shows that progressive muscle relaxation is more effective than guided imagery.

Lolak S, Sheridan MJ (2005) conducted a study to assess the effectiveness of progressive muscle relaxation training on sleep with chronic breathing disorders. The intervention received progressive muscle relaxation training using a pre recorded tape for 25 minutes per week during weeks 2-8. They are selected sample is 50. In this sample 25 participants for experimental group and 25 for control group among chronic breathing disorder patients. Primary outcome measures were levels of sleep evaluated by Pittsburgh scale. They concluded that it is very effective in chronic breathing disorders.

Clin Rehabil (2004) conducted a randomized controlled trial on effects of progressive muscle relaxation on sleep and subject well being in people with multiple sclerosis. The setting of the study is an acute inpatient care unit of an University

Neurological Centre. In this study they are selected sixty-four out of 88 eligible patients with multiple sclerosis and intervention for this study patients were randomly assigned to either a single progressive muscle relaxation session during 25 minutes or a resting control condition with the opportunity to read for an equal amount of time. The main outcomes measures are state sleep inventory and the subject experiences scale were completed. They concluded that progressive muscle relaxation is highly effective in improving sleep with multiple sclerosis and increase in subjective well being.

Roten T , Arnon Z (2004) conducted a comparative study to assess the effectiveness of progressive muscle relaxation on insomnia in older patients and their relationship to personality traits. A large percentage of older people suffer from chronic insomnia, affecting many aspects of life quality and well being. Although insomnia is most often treated with medication, a growing number of studies demonstrate the efficiency of various relaxation and progressive muscle relaxation on various objective relaxation techniques. This study has two aims: first to compare to relaxation techniques music relaxation and progressive muscle relaxation on various subjective and subjective measures of sleep. Fifteen older adults took part in the study. Participants followed one week of music relaxation before going to sleep. They concluded that progressive muscle relaxation more efficient in improving sleep than music relaxation.

Geherman (2003) conducted a quasi experimental study to assess the effectiveness of progressive muscle relaxation on quality of sleep with cancer patients. The background of the study is in view of the growing caring options in cancer patients, improvement of quality of sleep has become increasingly relevant as

a caring intervention. Complementary therapies are widely used by cancer patients and progressive muscle relaxation technique is a form of complementary therapies. In this study they are selected cancer patients (n=66) with no probability sampling then assigned to experimental and control groups (33 patients in each group). Means of data collection included individual information questionnaire, self reported checklist. Progressive muscle relaxation technique performed for 63 sessions by experimental group during two months but no intervention done for control group. Statistical analysis was done by SPSS software and ANOVAs test showed that there is a significant differences in mean score of whole and dimensions of health-related quality of sleep between two groups in three times ($p<0.005$). This study provides modest support for the effectiveness of progressive muscle relaxation on quality of sleep on cancer patients.

CHAPTER III

RESEARCH METHODOLOGY

Research methodology refers to the techniques used to structure a study and to gather and analyze information in a systematic fashion (**Polit&Hungler, 2008**). Methodology includes the steps, procedures and strategies for gathering and analyzing the data in the research investigation.

This chapter describes the methodology followed to assess the effectiveness of progressive muscle relaxation technique on quality of sleep among breast cancer patients in Kanyakumari.

This chapter consists of research approach, research design, and variables in the study, setting of the study, study population, sample, sample size, sampling technique, criteria for sample selection, development and description of the tool, description of intervention, content validity, reliability, pilot study, data collection procedure and plan for data analysis and protection of human rights.

RESEARCH APPROACH

Quantitative approach was adopted for this study. It refers to the systematic empirical investigation of social phenomena via statistical, mathematical, or computational techniques.

RESEARCH DESIGN

Research design used in this study was quasi experimental pretest and posttest control group design. It can diagrammatically represented as

GROUP	PRETEST	INTERVENTION	POSTTEST
Experimental group	O1	X	O2
Control group	O1	-	O2

Figure 1: Schematic Representation of Research Design.

KEYS:

O1: Pretest level of quality of sleep among experimental group and control group.

X : Progressive muscle relaxation technique to the experimental group.

O2: Posttest level of quality of sleep among experimental group and control group.

VARIABLES

Variables are characters that can have more than one value. The categories of variables discussed in the present study are, independent variable and dependent variable.

Independent variable

The independent variable in this study was progressive muscle relaxation technique.

Dependant variable

The dependent variable in this study was level of quality of sleep.

SETTING OF THE STUDY

The setting of the study refers to the area where the study was conducted. The study was conducted in Kanyakumari medical mission hospital at Kanyakumari district. Total bed of the Kanyakumari medical mission hospital is 250. The specialty of the hospital is treatment of radiation, chemotherapy, surgical treatment. In this hospital monthly two fifty patients are admitted for cancer treatments. Per month nearly 180 breast cancer patients used to come for treatment. In this, mainly 70 patients are in II stage of breast cancer. The second stages of breast cancer patients are receiving radiation and chemotherapy and they are staying in hospital for 9-21days. The distances of the hospital from the college were 110 kilometers respectively. In Kanyakumari medical mission hospital patients in the medical ward I and medical ward II was the samples for experimental group and control group.

STUDY POPULATION

The population of the study was the patients with breast cancer in Kanyakumari.

SAMPLE

Samples consist of breast cancer patients in the age group of 25-60 years and residing at Kanyakumari medical mission hospital in Kanyakumari.

SAMPLE SIZE

The Sample size for the study was 60. Among 60 samples, 30 persons were in experimental group and another 30 persons were in control group. The Samples were selected based on the inclusive criteria.

SAMPLING TECHNIQUE

The sampling technique used for this study was non-probability purposive sampling technique. Kanyakumari medical mission hospital was selected for the study. During the data collection period 35 patients were admitted in the medical ward I and 38 patients are admitted in medical ward II. Seventy patients were in second stage of breast cancer. Out of 70, the investigator selected 60 samples who were in second stage of breast cancer for the experimental and control group. The researcher visited the selected hospitals daily to identify the samples. The researcher enquired with the medical ward staff and verifies with the admission register everyday for new admission of breast cancer patients for treatment. Purposive sampling technique were used to draw the samples, and breast cancer patients who fulfilled the inclusion criteria were selected by using purposive sampling technique. The sample for experimental group was selected in medical ward I and sample for control group was selected in medical ward II.

CRITERIA FOR SAMPLE SELECTION

The sample was selected based on the following inclusion and exclusion criteria

Inclusive criteria

- Patients who were in the age group of 25-60 yrs.
- The patient who had mild to moderate sleep problem.
- The patient who had breast cancer within 2-5 years.
- The patient who was under chemotherapy and radiation therapy.
- The patient who had II stage of breast cancer.

Exclusive criteria

- Who are in under the category of severe sleep problem
- Those who were taking drug for sleep.
- Patients with altered state of consciousness.
- Patients who had hearing impairment.
- The patient who had I and III stage of breast cancer.

RESEARCH TOOL AND TECHNIQUE

DEVELOPMENT AND DESCRIPTION OF TOOL:

The method and procedures employed for the collection of data are called technique and instrument used are called tool. The tool consists of two sections.

Section: A

Demographic Data

It deals with demographic variables include age, marital status, education, occupation, type of family, monthly income and duration of illness.

Section: B

Groningen sleep quality scale

It comprises the self-administered Groningen sleep quality questionnaire to assess the level of quality of sleep. It consists of twenty items. It is a four point scale.

SCORING PROCEDURE

SECTION :B.

Groningen sleep questionnaire was used to assess the level of quality of sleep which containes 20 items. It is a four point scale. Score was obtained by summing

across all twenty items. Each item was scored as 1 for not at all,2 for somewhat,3 for moderately and 4 for very much. Total score was 80.

Scoring key

The score was interpreted as follows.

Score	Interpretation
20	Normal
21-40	Mild sleep problem
41-60	Moderate sleep problem
61-80	Severe sleep problem

DESCRIPTION OF INTERVENTION

Progressive muscle relaxation is a great technique for reducing overall body tension, as one practices tensing and relaxing all the muscle groups of shoulders, arms, back, abdomen, chest, buttocks, thighs, calves and it is important technique to improve sleep.

- Consent was obtained from each patients and reassurance was provided that the collected data would be kept confidential.
- Explain the procedure and make a patient to lie in comfortable position on a firm comfortable surface on the bed. Taught that progressive muscle relaxation techniques and its effect on breast cancer.
- Ask the patient to make fist with right hand.
- Ask the patient to bring right forearm up to shoulder.
- Then do the left forearm up to shoulder.

- Tell the patient to raise the eyebrows as high as they will go.
- Advice the patient to squeeze the eyes tight shut.
- Then ask the patient to open the mouth as wide as possible.
- Ask the patient to pull the face forward and then pull the head back slowly.
- Then advice the patient to bring the shoulder upwards to ears.
- Ask the patient to push the shoulder blade back trying to almost touch them together.
- Advice the patient to take a deep breath, and then fill the lungs and chest with air.
- Ask the patient to squeeze the buttocks muscles.
- Then tell the patient to tighten the right thigh.
- Tell the patient to pull the toes towards to stretch the calf muscles.
- Ask the patient to curl the toes downwards.
- Repeat as for right upper and lower leg, and repeat as right foot and also do the left upper and lower and left foot.

After systematically tightening and relaxation of all the muscle groups shoulders, arms, back, abdomen, chest, buttocks, thighs, calves in the body, one should feel relaxed and calm. The technique was given of for 30 minutes every night continuous for 7 days.

CONTENT VALIDITY:

The content of the tool was established on the basis of the opinion of one medical expert and four nursing experts in the field of medical surgical nursing.

RELIABILITY:

Reliability of the tool was tested by the investigator and other nursing expert. The reliability of the tool was determined by test retest method. The reliability score was r=0.9. Hence the tool was considered highly reliable for proceedings the study.

PILOT STUDY

It as a rehearsal for the main study. The researcher got permission from the Principal, research ethical committee and HOD in medical surgical nursing of Sri.K. Ramachandran Naidu College of Nursing. A formal permission was obtained from medical officer of Kanyakumari medical mission at Kanyakumari district. In this district, the investigator selected Kanyakumari medical mission hospital for conducting the pilot study. Kanyakumari medical mission was selected for experimental group and control group. The data was collected from 24-07-2013 to 31-07-2013 (9 pm-6 am). The investigator collected the list of patients with stage II breast cancer from the Kanyakumari medical mission to find out the samples with breast cancer aged 25-60 years in hospital. The concerned ward in charge and duty doctors were also informed and obtained their co-operation. Written consent was obtained. The sample size was 6 and they were selected by using purposive sampling technique, in that three of them were allotted to experimental and three of them to control group.

Rapport was established with the breast cancer patients and a brief introduction about the study was given. Consent was obtained from each breast cancer patients and reassurance was provided that the collected data would be kept confidential. The data related to demographic variables were collected from the

questionnaire method. Progressive muscle relaxation technique given for experimental group once in 30 minutes of every night continuously for 7 days. No intervention was given for control group. The pre test and post-test level of quality of sleep was assessed by Groningen sleep quality scale. The result of pilot study showed that the experimental group had improvement of quality of sleep as compared to the control group. The study was found to be feasible, hence the same procedure was decided to be followed in the main study. There was no modification made in the tool after pilot study. The samples selected for the pilot study were not included in the main study.

DATA COLLECTION PROCEDURE

The researcher got permission from the Principal and the research ethical committee and the HOD of the medical surgical nursing of Sri. K. Ramachandran Naidu College of Nursing. Before the data collection formal permission was obtained from the medical officer of Kanyakumari medical mission hospital at Kanyakumari for conducting main study.

Data collection was conducted for four consecutive weeks from 01-08-2013 to 31-08-2013. The investigator collected the data for seven days a week from Monday to Sunday, and from 9pm to 6am.

During the data collection procedure the investigator established rapport with breast cancer patients. They were assured that no physical or emotional harm would be done in the course of study. Based on inclusive criteria the samples were allotted to experimental group and control group. The procedure for data collection was similar to that of the pilot study. Using purposive sampling technique 60 breast cancer

patients were selected. Out of 60 samples 30 samples in medical ward I were allotted for experimental group and 30 samples in medical ward II allotted for control group.

Data pertaining to the demographic variables were collected by questionnaire method. The investigator assessed the level of quality of sleep by using Groningen sleep quality scale and scored. For experimental group, each week the investigator selected 10 patients with breast cancer and gathered them in a common place. Pretest was carried out them the investigator and demonstrated progressive muscle relaxation technique on first day itself. The samples were instructed to follow the same techniques for 30 minutes of every night continuously for 7 days under the supervision of investigator. On the 8th day post test was done. Same procedure was carried out for 3 weeks. For control group, pretest was done on first day but no intervention was given on 8th day post test was carried out with same. Data collection was analyzed by using both descriptive and inferential statistics.

PLAN FOR DATA ANALYSIS

Both descriptive and inferential statistics were used.

Descriptive statistics

- The frequency and Percentage distribution were used to analyze the demographic variables of the samples.
- Frequency and Percentage distribution was used to assess the pretest and post test level of quality of sleep among patients with breast cancer.
- Mean and standard deviation were used to assess the effectiveness of progressive muscle relaxation technique on quality of sleep

Inferential Statistics

- Paired `t' test was used to compare the pretest and posttest level of quality of sleep among patients with breast cancer in experimental group.
- Unpaired 't'test was used to compare the post test level of quality of sleep among patients with breast cancer in both experimental and control group.
- Chi-Square test was used to analyze the association of posttest level of quality of sleep with their selected demographic variables.

PROTECTION OF HUMAN RIGHTS

Research proposal was approved by the dissertation committee, prior to the pilot study and the main study permission was obtained from the head of the department of medical surgical nursing, Sri.K.Ramachandran Naidu College of Nursing, Sankarankovil. An oral consent from each patient was obtained before starting the data collection. Assurance was given to the patients that confidentiality would be maintained.

SUMMARY

This chapter has dealt briefly with research methodology adapted for the study. It included research approach, research design, and variables in the study, setting of the study, population, sample size, sampling technique, criteria for sample selection, research tool and technique, development and description of the tool, scoring key, content validity, pilot study, data collection procedure and plan for data analysis and protection of human rights.

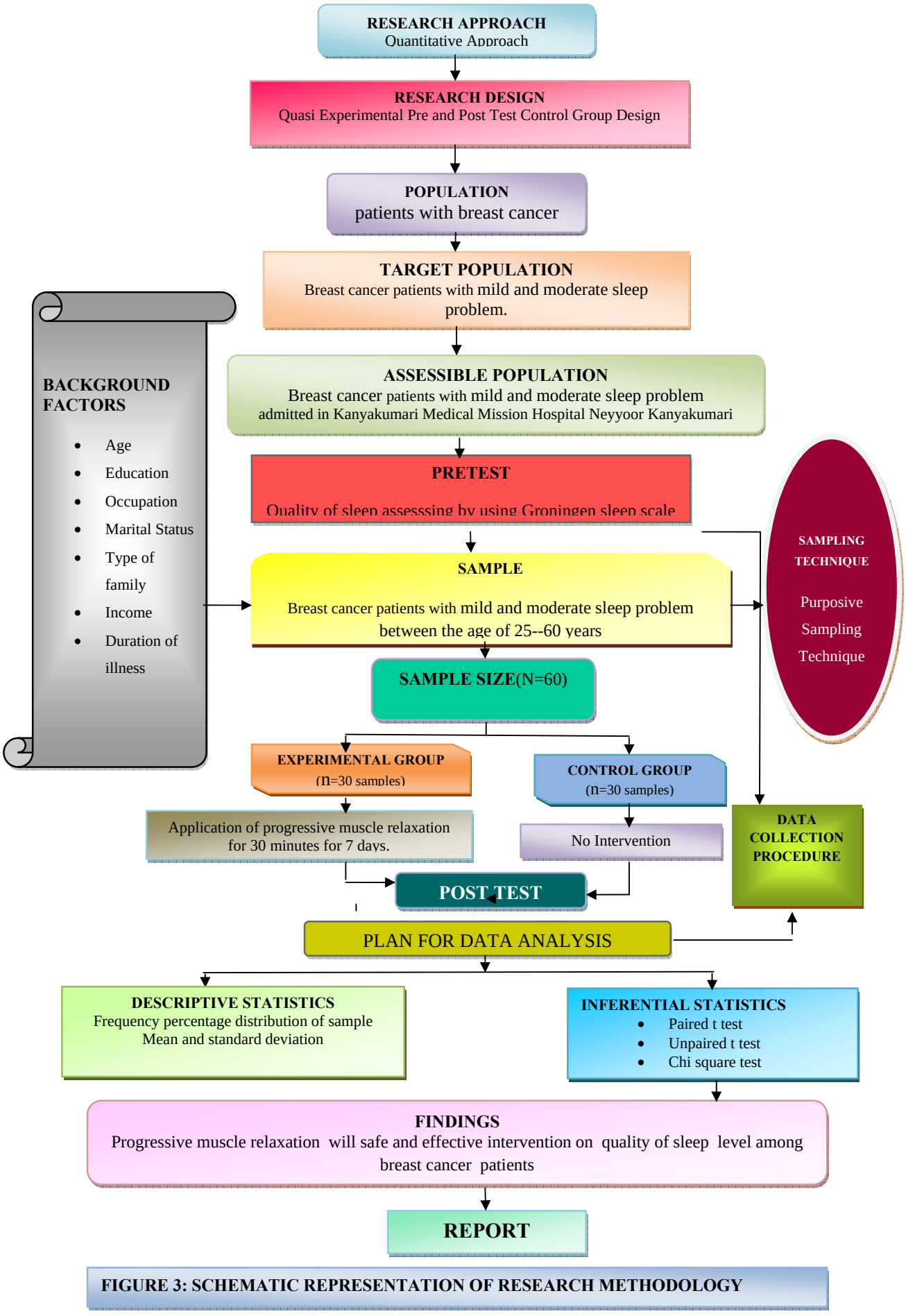

FIGURE 3: SCHEMATIC REPRESENTATION OF RESEARCH METHODOLOGY

CHAPTER

DATA ANALYSIS AND INTERPRETATION

This Chapter deals with the analysis of the data and interpretation of the data collected from the samples to assess the effectiveness of progressive muscle relaxation technique on quality of sleep among patients with breast cancer.

Analysis is the method of organizing scrutinizing and sorting the data in such a way that research questions can be answered **[polit, Hungler (2009)]**

The purpose of analysis is to find out the effectiveness so that the relation of the problem can be tested.

The analysis and interpretation of data is based on data collection the results are computed by using descriptive (mean, Frequency, percentage distribution and mean, standard deviation) and inferential ('t'- test and chi square test) statistics. The data has been tabulated and organized as follows.

ORGANIZATION OF DATA

Section I

Description of demographic variables of the patient with breast cancer.

Section II

Assessment of the level of quality of sleep among patients with breast cancer in experimental and control group

- Assessment of pretest and posttest level of quality of sleep among patients with breast cancer in experimental group

- Assessment of pretest and posttest level of quality of sleep among patients with breast cancer in control group

Section III

Comparison of level of quality of sleep among patients with breast cancer in experimental and control group

- Comparison of posttest level of quality of sleep among patients with breast cancer between the experimental and control group
- Comparison of pretest and posttest level of quality of sleep among patients with breast cancer in experimental group

Section IV

Association of posttest level of quality of sleep among patients with breast cancer in experimental and control group with the selected demographic variables

- Association of posttest level of quality of sleep among patients with breast cancer in experimental group with their selected demographic variables.
- Association of posttest level of quality of sleep among patients with breast cancer in control group with their selected demographic variables.

SECTION I:

DATA ON DEMOGRAPHIC VARIABLES OF PATIENTS WITH BREAST CANCER

Table 1: Frequency and percentage distribution of the samples based on demographic variables such as age, education, type of family, occupation, monthly income, marital status, and duration of illness

(N=60)

S.No	Demographic variables	Experimental group		Control group	
		F	%	F	%
1	**Age**				
	a) 21-30 Years	3	10	0	0
	b) 31-41 Years	17	56.66	16	53.33
	c) 41-50 Years	10	33.33	7	23.33
	d) 51-60 Years	0	0	7	23.33
	e) Above 60	0	0	0	0
2	**Education**				
	a) Illiterate	5	16.66	4	13.33
	b) Primary education	14	46.66	13	43.33
	c) Higher education	4	13.33	6	20
	d) Higher secondary education	0	0	0	0
	e) Graduate	7	23.33	7	23.33
	f) Post graduate	0	0	0	0

3	**Type of family**				
	a) Nuclear family	21	70	28	93.34
	b) Joint family	9	30	2	6.66
4	**Occupation**				
	a) Unemployed	10	33.33	8	26.66
	b) Coolie	9	30	11	36.66
	c) Private	8	26.66	9	30
	d) Government	3	10	2	6.66
5	**Monthly income**				
	a) < 2000	7	23.33	14	46.66
	b) 2000-4000	9	30	6	20.01
	c) 4000-6000	9	30	10	33.33
	d) Above 6000	5	16.66	0	0
6	**Marital status**				
	a) Single	0	0	0	0
	b) Married	30	100	21	70
	c) Divorced	0	0	9	30
	d) Widow	0	0	0	0
7	**Duration of Illness**				
	a) 2- 3 years	26	86.68	17	56.66
	b) 3-4 years	2	6.66	4	13.33
	c) 4-5 years	2	6.66	9	30.01

Table 1 denotes the frequency and percentage distribution of the samples based on demographic variables such as age, education, type of family, occupation, monthly income, marital status and duration of illness in the experimental and control group.

While considering the age, in the experimental group out of 30 patients, 3(10%) of them were between the age group of 25-30 years, 17(56.66%) of patients belongs to31-40years and 10(33.33%) of patients belongs to 41-50 years and none (0%) of patients belongs to 51-60 years and none(0%) of patients belongs to above 60 years, whereas in the control group out of 30 patients none(0%) of them were between the age group of 25-30 years, 16(53.33%) of patients belongs to 31-40 years and 7(23.33%) of patients belongs to 41-50 years and 7(23.33%) of patients belongs to 51-60years and none(0%) of patients belongs to above 60 years.

Based on the education, in the experimental group out of 30 patients, 5(16.66%) of them were illiterate, 14(46.66%) of them had primary education and 4(13.33%) of them had high school education and none(0%) of them had higher secondary school education and 7(23.33%) of them had graduate and none(0%) of them had post graduate, whereas in the control group out of 30 patients, 4(13.33%) of them were illiterate, 13(43.33%) of them had primary school education and 6(20%) of them had high school education and none(0%) of them had higher secondary school education and 7(23.33%) of them had graduate and none(0%) of them had post graduate education.

Regarding the type of family, in the experimental group out of 30 patients, 21(70%) of them were in nuclear family and 9(30%) of them were in joint family, whereas in the control group out of 30 patients, 22(73.33%) of them were in nuclear family and 8(26%) of them were in joint family.

In relation with occupation, in the experimental group among the 30 patients with breast cancer, 10(33.33%) of them were unemployed, 9(30%) of them were

coolie, 8(33.33%) of them were working in private sectors and 3(10%) of them working in government sectors, whereas in the control group out of 30 patients, 8(26.66%) of them were unemployed, 11(36.66%) of them were coolie and 9(30%) of them were private employees and 2(6.66%) of them were government employees.

With regard to monthly income, in the experimental group out of 30 patients, 7(23.33%) of patients were earning below 2000 and 9(30%) of patients were earning 2000-4000 and 9(30%) of them were earning 4000-6000 and 5(16.66%) of them were earning above 6000, whereas in the control group out of 30 patients, 14(46.66%) of patients were earning below 2000 and 6(20%) of them were earning 2000-4000 and 10(33.33%) of patients were earning 4000-6000 and none(0%) of patients were earning above 6000.

Regarding the marital status of breast cancer patients, in the experimental group out of 30 patients, none(0%) of them were single, 30(100%) of patients were married and none(0%) of patients were divorced and widow, whereas in the control group out of 30 patients, none(0%) of them were single, 21(70%) of them were married and 9(30%) of them were divorced and none(0%) of them were widow.

Regarding the duration of illness, in the experimental group out of 30 patients, 26(86.66%) of them belongs to 2-3 years of illness, 2(6.66%) of them belongs to 3-4 years of illness and 2(6.66%) of them belong to 4-5 years of illness, whereas in the control group out of 30 patients, 17(56.66%) of them belongs to 2- 3 years of illness, 4(13.33%) of them belongs to 3-4 years of illness and 9(30%) of them belongs to 4-5 years of illness.

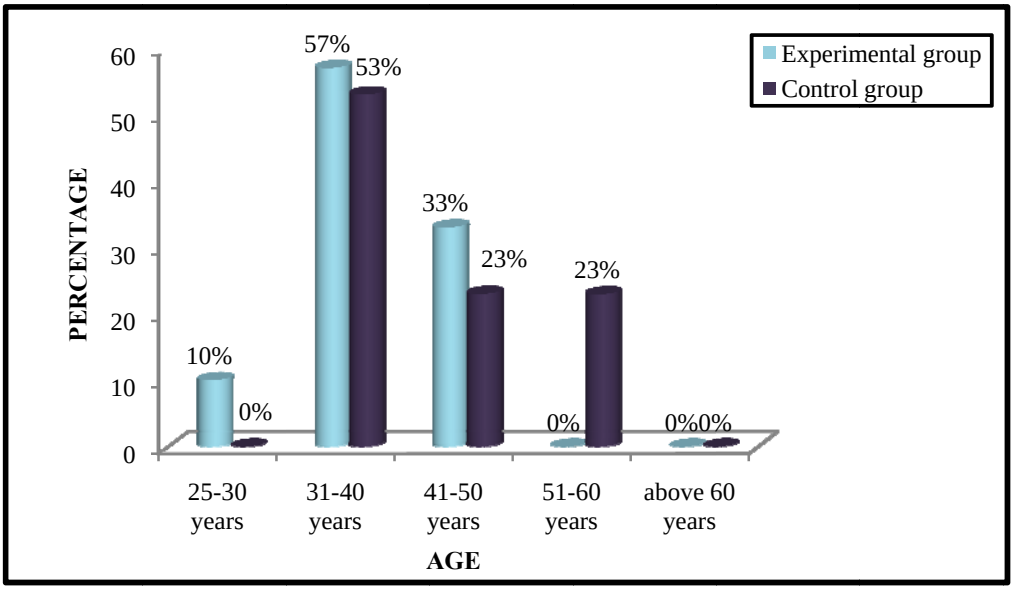

Figure 4: Percentage distribution of demographic variables of age in experimental and control group

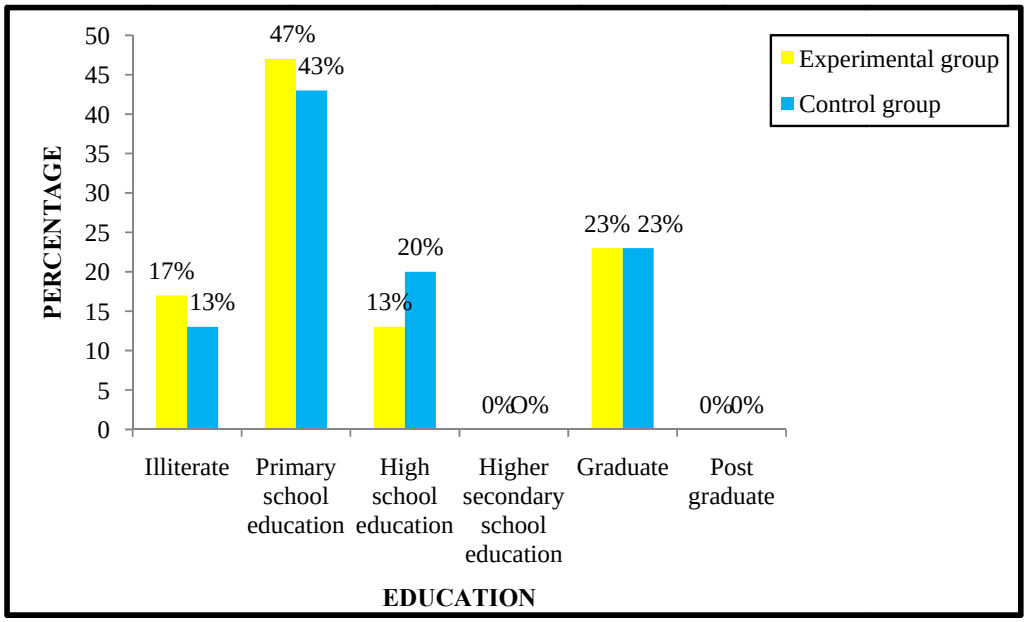

Figure 5: Percentage distribution of demographic variables of education in experimental and control group

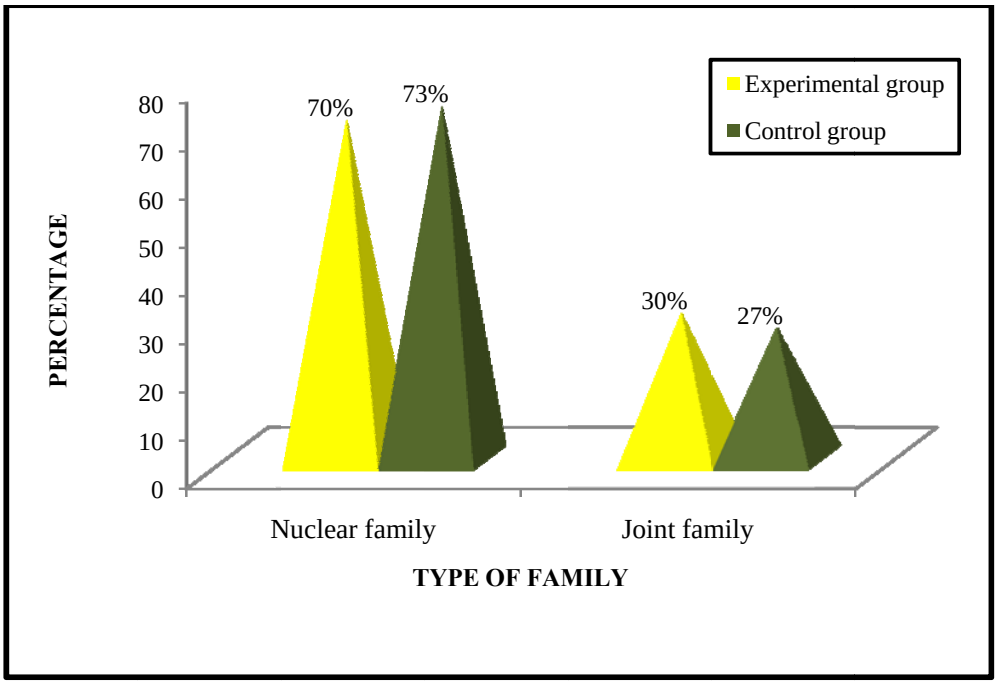

Figure 6: Percentage distribution of demographic variables of type of family in experimental and control group

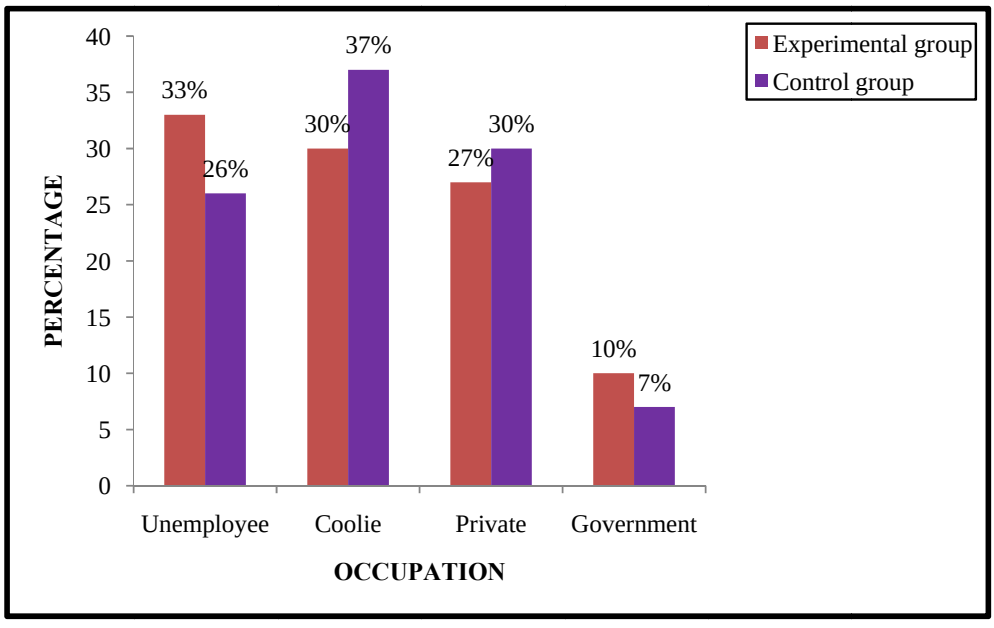

Figure 7: Percentage distribution of demographic variables of occupation in experimental and control group

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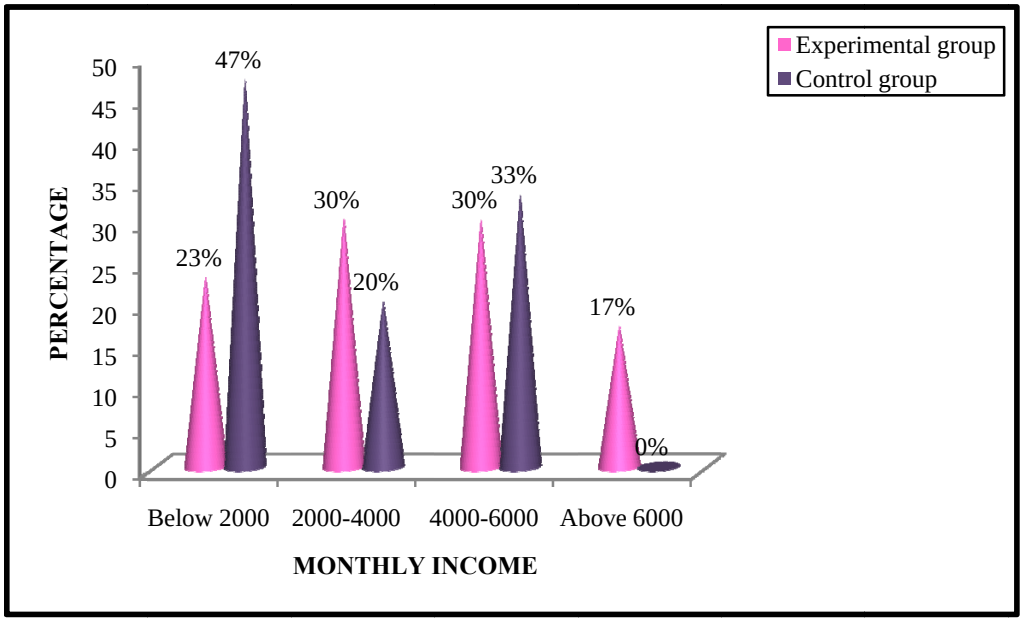

Figure 8: Percentage distribution of demographic variables of monthly income in experimental and Control group

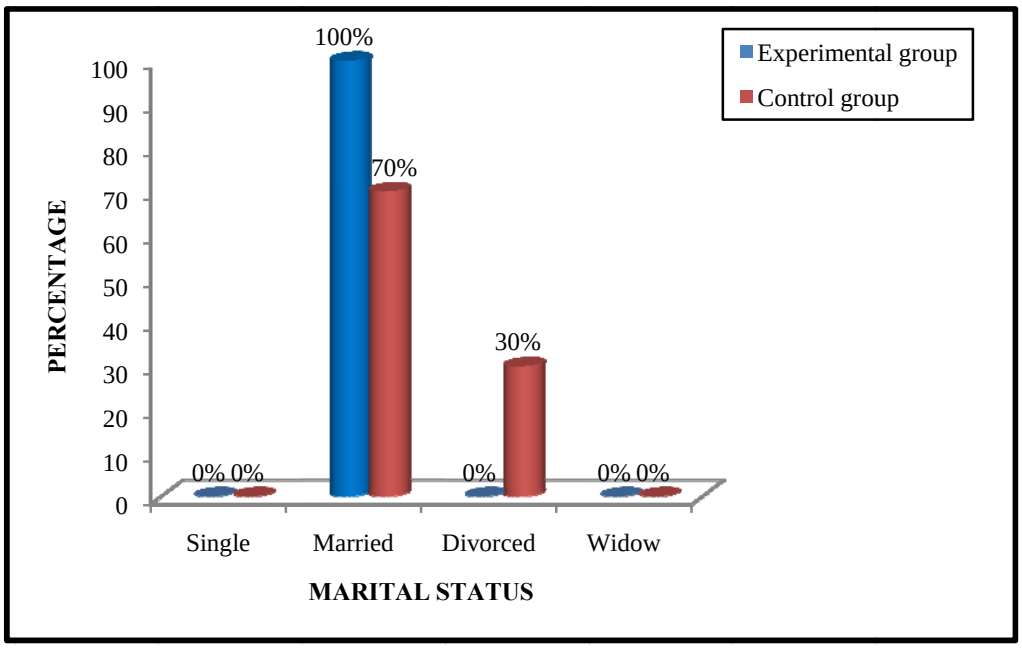

Figure 9: Percentage distribution of demographic variables of marital status in experimental and Control group

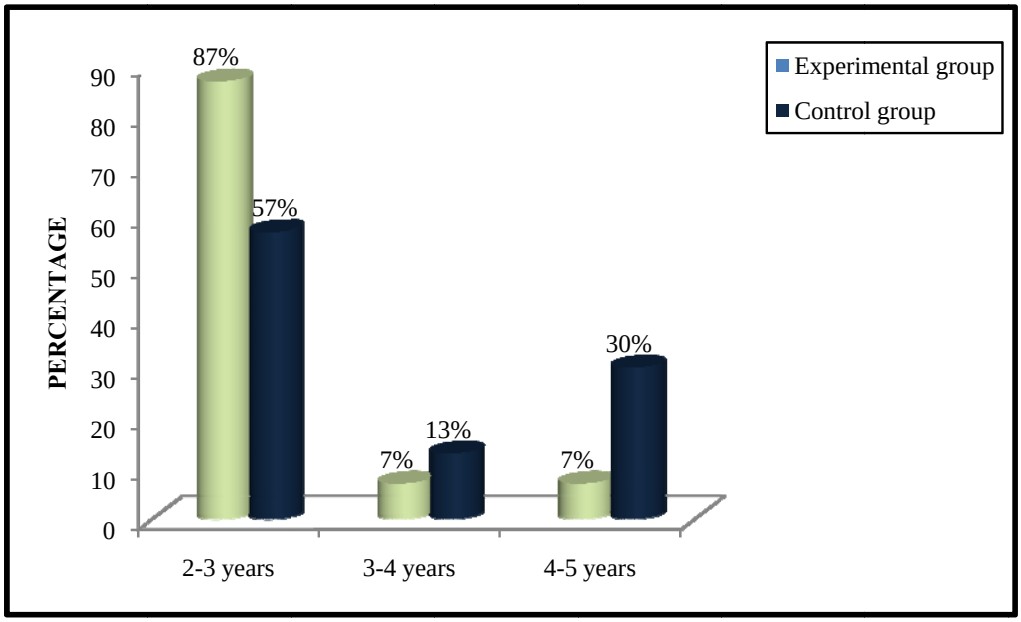

Figure 10:Percentage distribution of demographic variables of duration of illness in experimental and Control group

SECTION: II

ASSESSMENT OF THE LEVEL OF QUALITY OF SLEEP AMONG PATIENTS WITH BREAST CANCER IN EXPERIMENTAL AND CONTROL GROUP

Table 2: Assessment of pretest and posttest level of quality of sleep among patients with breast cancer in experimental group.

(N=30)

S.No	Level of Quality of sleep	Pretest		Posttest	
		F	%	F	%
1	Normal sleep	-	-	13	43.33
2	Mild sleep problem	5	16.66	17	56.66
3	Moderate sleep problem	25	83.33	-	-
4	Severe sleep problem	-	-	-	-

Table 2 reveals the frequency and percentage distribution of pre test and posttest level of quality of sleep among experimental group. It is evident from the above table that during pre test, none of the patients had normal sleep, 5(16.66%) of the patients had mild sleep problem, 25(83.33%) of them had moderate sleep problem, none of them had severe sleep problem, where as in the posttest level of quality of sleep among the experimental group 13(43.33%) of the patients had normal sleep, 17(56.66%) of them had mild sleep problem, none of them had moderate and severe sleep problem.

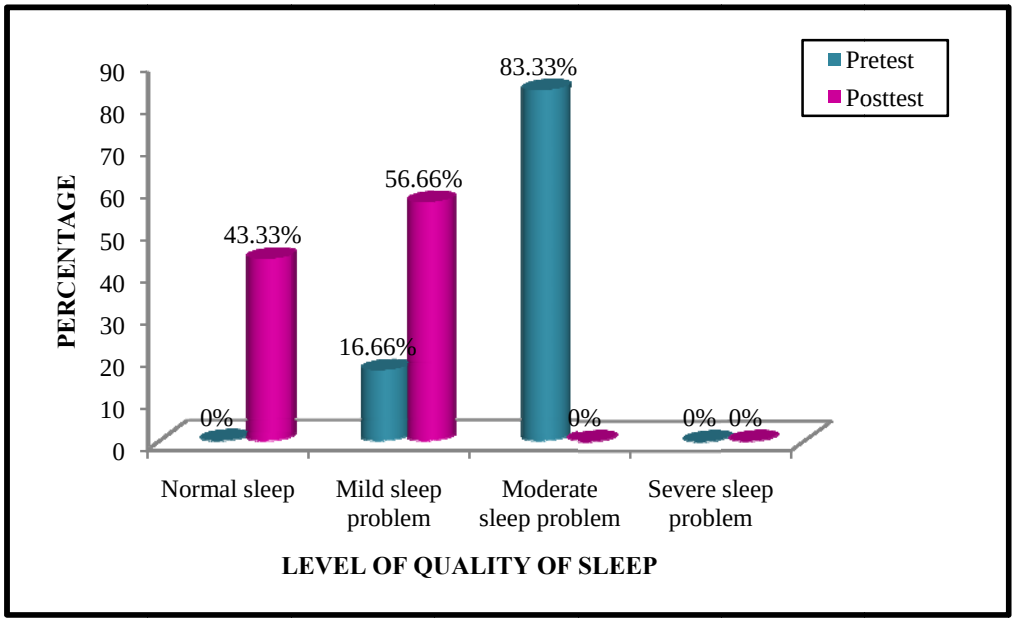

Figure 11:Percentage distribution of pretest and posttest level of quality of sleep among experimental group

Table 3: Assessment of pretest and posttest level of quality of sleep among patients with breast cancer in control group.

(N=30)

S.No	Level of Quality of sleep	Pretest		Posttest	
		F	%	F	%
1	Normal sleep	-	-		
2	Mild sleep problem	21	70	22	73.33
3	Moderate sleep problem	9	30	8	26.66
4	Severe sleep problem	-	-	-	-

Table 3 reveals the frequency and percentage distribution of pre test and posttest level of quality of sleep among control group. It is evident from the above table that during pre test, none of the patients had normal sleep, 21(70%) of the patients had mild sleep problem, 9(30%) of them had moderate sleep problem, none of them had severe sleep problem, where as in the posttest level of quality of sleep among the control group none of the patients had normal sleep, 22(73.33%) of them had mild sleep problem, 8(26.66) of them had moderate sleep problem and no one had severe sleep problem.

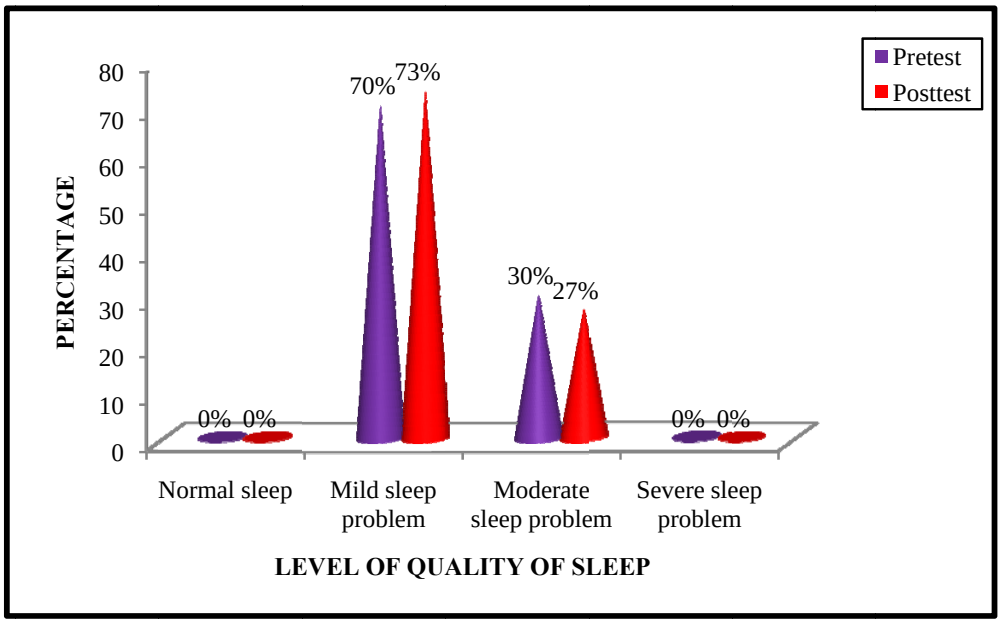

Figure 12: Percentage distribution of pretest and posttest level of quality of sleep among control group

SECTION III

COMPARISON OF THE LEVEL OF QUALITY OF SLEEP AMONG EXPERIMENTAL GROUP AND CONTROL GROUP

Table 8: Comparison of post test level of quality of sleep among patients with breast cancer in experimental and control group

(N=60)

S.No	Group	Mean	Standard Deviation	t Value
1	Experimental group	26.73	7.63	3.703 S
2	Control group	34.36	8.24	

S = Significant

Table 4 reveals the unpaired `t' test to compare the posttest level of quality of sleep between experimental and control group was found that the `t' value was 3.703, indicating that there is significant difference in posttest level of quality of sleep between the experimental and control group at $p<0.05$ level. Hence the stated hypothesis, "the mean posttest level of quality of sleep among experimental group will be significantly higher than the mean posttest level of quality of sleep in the control group" was accepted.

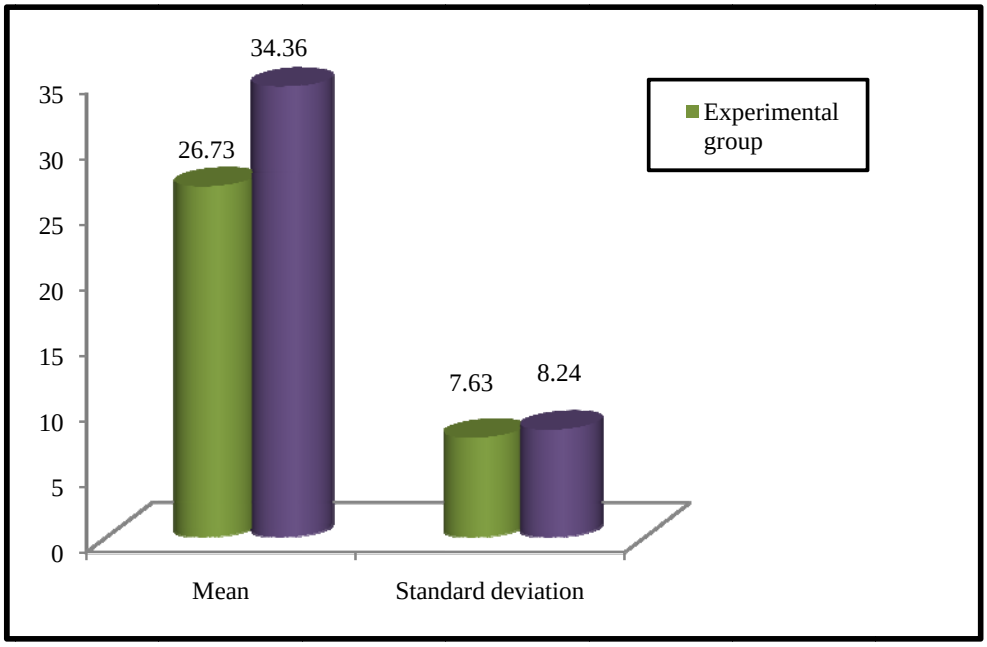

Figure 13: Mean and standard deviation of posttest level of quality of sleep in experimental and control group

Table 5: Comparison of pretest and post test level of quality of sleep among experimental Group

(N = 30)

S.No	Group	Pretest		Posttest		Mean Difference	t Value
		Mean	Standard Deviation	Mean	Standard Deviation		
1	Experimental Group	43.66	8.351	26.73	7.63	16.73	8.12 S

S = Significance

Table 5 reveals the paired `t' test to compare the pretest and posttest level of quality of sleep among experimental group was found that the't' value was 8.12 indicating that there is significant difference in pretest and posttest level of quality of sleep among experimental at $p<0.05$ level. Hence the stated hypothesis, "the mean post test level of quality of sleep will be significantly higher than the mean pretest level of quality of sleep in experimental group" was accepted.

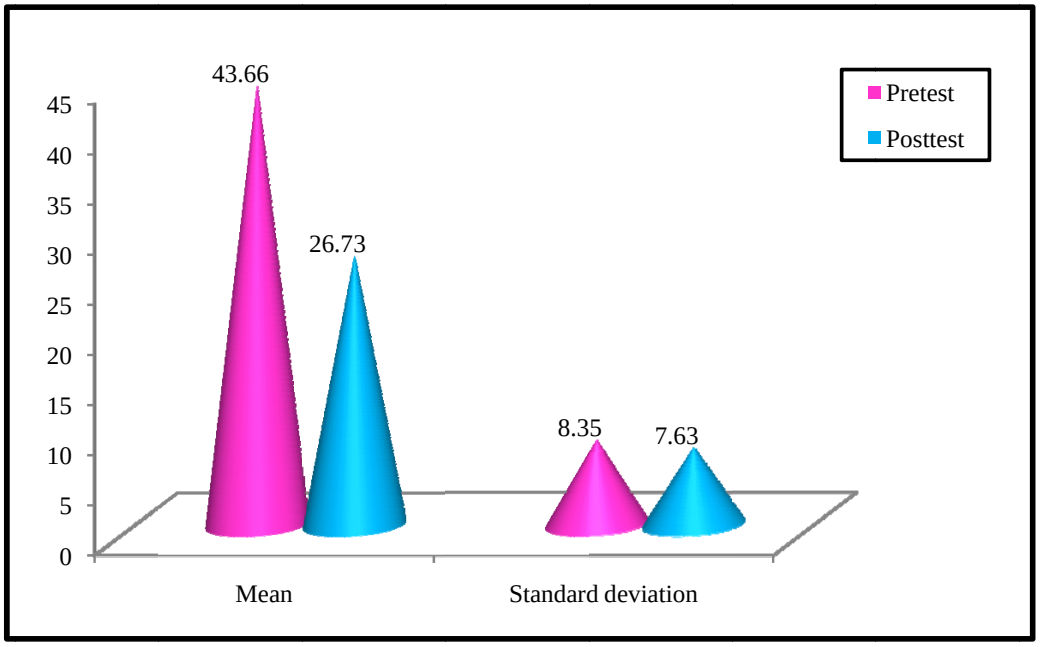

Figure 14: Mean and Standard deviation of pretest and posttest level quality of sleep among experimental group.

SECTION V:

ASSOCIATION OF POSTTEST LEVEL OF QUALITY OF SLEEP IN EXPERIMENTAL AND CONTROL GROUP WITH DEMOGRAPHIC VARIABLES.

Table 7: Association of posttest level of quality of sleep in experimental group with demographic variables

(N = 30)

S. No.	Demographic Variables	Level of sleep problem								χ^2
		Normal sleep		Mild sleep problem		Moderate sleep problem		Severe sleep problem		
		F	%	F	%	F	%	F	%	
1	**Age**									
	a) 25-30 years	2	6.66	1	3.33	0	0	0	0	
	b) 31-40 years	6	20	11	36.66	0	0	0	0	1.281
	c) 41-50 years	5	16.66	5	16.66	0	0	0	0	d(f)=12
	d) 51-60 years	0	0	0	0	0	0	0	0	NS
	e) above 60	0	0	0	0	0	0	0	0	
2	**Education**									
	a) Illiterate	1	3.33	4	13.33	0	0	0	0	
	b) Primary education	8	26.66	6	20	0	0	0	0	
	c) High school education	1	3.33	3	10	0	0	0	0	2.80
	d) Higher secondary school education	0	0	0	0	0	0	0	0	d(f)=15 NS
	e) Graduate	3	10	4	13.33	0	0	0	0	
	f) Post graduate	0	0	0	0	0	0	0	0	

Table7 continues….

S. No.	Demographic Variables	Level of sleep problem								χ^2
		Normal sleep		Mild sleep problem		Moderate sleep Problem		Severe sleep Problem		
		F	%	F	%	F	%	F	%	
3	**Type of family**									
	a) Nuclear family	10	33.33	11	36.66	0	0	0	0	0.522
	b) Joint family	3	10	6	20	0	0	0	0	d(f)=3
										NS
4	**Occupation**									
	a) < 2000	2	6.66	8	26.66	0	0	0	0	9.001
	b) 2000- 4000	7	23.33	2	6.66	0	0	0	0	d(f)=9
	c) 4000 - 6000	4	13.33	4	13.33	0	0	0	0	NS
	d) > 6000	0	0	3	10	0	0	0	0	
5	**Monthly income**									
	a) Unemployed	3	10	4	13.33	0	0	0	0	3.029
	b) Coolie	6	20	3	10	0	0	0	0	d(f)=9
	c) Private	2	6.66	7	23.33	0	0	0	0	NS
	d) Government	2	6.66	3	10	0	0	0	0	
6	**Marital status**									
	a) Single	0	0	0	0	0	0	0	0	0
	b) Married	13	43.33	17	56.66	0	0	0	0	d(f)=9
	c) Divorced	0	0	0	0	0	0	0	0	NS
	d) Widow	0	0	0	0	0	0	0	0	
7	**Duration of illness**									
	a) 2-3 years	12	40	14	46.66	0	0	0	0	1.642
	b) 3-4 years	1	3.33	1	3.33	0	0	0	0	d(f) = 6
	c) 4-5 years	0	0	2	6.66	0	0	0	0	NS

NS = Non-Significant.

Table 7 reveals the chi-square test to associate the post test level of quality of sleep with the selected demographic variables like age, education, type of family, occupation, monthly income, marital status, duration of illness in the experimental group. While analyzing the statistical significance at ($P<0.05$) level it shows that there was no significant association of the post test level of quality of sleep with the selected demographic variables at $P<0.05$ level. Hence the research hypothesis was rejected.

Table 8: Association of posttest level of quality of sleep in control group with demographic variables (N = 30)

S. No.	Demographic Variables	Level of Sleep								χ^2
		Normal sleep		Mild sleep problem		Moderate sleep problem		Severesleep problem		
		F	%	F	%	F	%	F	%	
1	**Age**									
	a) 25-30 years	0	0	0	0	0	0	0	0	1.5
	b) 31-40 years	0	0	3	10	13	43.33	0	0	d(f)=12
	c) 41-50 years	0	0	1	3.33	6	20	0	0	NS
	d) 51-60 years	0	0	0	0	7	23.33	0	0	
	e) below 60 years	0	0	0	0	0	0	0	0	
2	**Education**									
	a) Illiterate	0	0	0	0	4	13.33	0	0	1.897
	b) Primary school Education	0	0	3	10	10	33.33	0	0	d(f)=15 NS
	c) Secondary school education	0	0	1	3.33	5	16.66	0	0	
	d) Higher secondary school education	0	0	0	0	0	0	0	0	
	e) Graduate	0	0	0	0	7	23.33	0	0	
	d) Post Graduate	0	0	0	0	0	0	0	0	
3	**Type of family**									
	a) Nuclear	0	0	2	6.66	20	66.66	0	0	1.293
	b) Joint	0	0	2	6.66	6	20	0	0	d(f)=3 NS
4	**Occupation**									
	a) Unemployed	0	0	1	3.33	7	23.33	0	0	3.55
	b) Coolie	0	0	3	10	8	26.66	0	0	d(f)=9
	c) Private	0	0	0	0	9	30	0	0	NS
	d) Governmemt	0	0	0	0	2	6.66	0	0	

5	**Monthly income**									
	a) Below 2000	0	0	1	3.33	13	43.33	0	0	0.899
	b) 2000-4000	0	0	1	3.33	5	16.66	0	0	d(f)=0.047
	c) 4000-6000	0	0	2	6.66	8	26.66	0	0	NS
	d) Above 6000	0	0	0	0	0	0	0	0	
6	**Marital status**									
	a) Single	0	0	0	0	0	0	0	0	0.047
	b) Married	0	0	3	10	18	60	0	0	d(f)=9
	c) Divorced	0	0	1	3.33	8	26.66	0	0	NS
	d) Widow	0	0	0	0	0	0	0	0	
7	**Duration of illness**									
	a) 2-3 years	0	0	4	13.33	13	43.33	0	0	2.33
	b) 3-4 years	0	0	0	0	4	13.33	0	0	d(f)=6
	c) 4-5 years	0	0	0	0	9	30	0	0	NS

NS = Non Significant.

S = Significant.

Table 8 reveals the chi-square test to associate the post test level of quality of sleep with the selected demographic variables like age, education, type of family, occupation, monthly income, marital status, duration of illness, in the control group. While analyzing the statistical significance at ($P<0.05$) level it shows that there was no significant association of the post test level of quality of sleep with the selected demographic variables at $P<0.05$ level except duration of illness. Hence the research hypothesis was rejected.

CHAPTER V

DISCUSSION

This chapter deals with the discussion of the result of the data analysis to evaluate the effectiveness of progressive muscle relaxation technique on quality of sleep among patients with breast cancer.

The discussion is based on the objectives of the study and the hypotheses specified in the study.

MAJOR FINDINGS OF THE STUDY WERE

1. On analysis of frequency and percentage of demographic variables of patients with breast cancer shows that age, in the experimental group out of 30 patients, 3(10%) of them were between the age group of 25-30 years, 17(56.66%) of patients belongs to31-40years and 10(33.33%) of patients belongs to 41-50 years and none (0%) of patients belongs to 51-60 years and none(0%) of patients belongs to above 60 years, whereas in the control group out of 30 patients none(0%) of them were between the age group of 25-30 years, 16(53.33%) of patients belongs to 31-40 years and 7(23.33%) of patients belongs to 41-50 years and 7(23.33%) of patients belongs to 51-60years and none(0%) of patients belongs to above 60 years.

2. Based on the education, in the experimental group out of 30 patients, 5(16.66%) of them were illiterate, 14(46.66%) of them had primary education and 4(13.33%) of them had high school education and none(0%) of them had higher secondary school education and 7(23.33%) of them had graduate and none(0%) of them had

post graduate, whereas in the control group out of 30 patients, 4(13.33%) of them were illiterate, 13(43.33%) of them had primary school education and 6(20%) of them had high school education and none(0%) of them had higher secondary school education and 7(23.33%) of them had graduate and none(0%) of them had post graduate education.

3. Regarding the type of family, in the experimental group out of 30 patients, 21(70%) of them were in nuclear family and 9(30%) of them were in joint family, whereas in the control group out of 30 patients, 22(73.33%) of them were in nuclear family and 8(26%) of them were in joint family.

4. In relation with occupation, in the experimental group among the 30 patients with breast cancer, 10(33.33%) of them were unemployed, 9(30%) of them were coolie, 8(33.33%) of them were working in private sectors and 3(10%) of them working in government sectors, whereas in the control group out of 30 patients, 8(26.66%) of them were unemployed, 11(36.66%) of them were coolie and 9(30%) of them were private employees and 2(6.66%) of them were government employees.

5. With regard to monthly income, in the experimental group out of 30 patients, 7(23.33%) of patients were earning below 2000 and 9(30%) of patients were earning 2000-4000 and 9(30%) of them were earning 4000-6000 and 5(16.66%) of them were earning above 6000, whereas in the control group out of 30 patients, 14(46.66%) of patients were earning below 2000 and 6(20%) of them were earning 2000-4000 and 10(33.33%) of patients were earning 4000-6000 and none(0%) of patients were earning above 6000.

6. Regarding the marital status of breast cancer patients, in the experimental group out of 30 patients, none(0%) of them were single, 30(100%) of patients were married and none(0%) of patients were divorced and widow, whereas in the control group out of 30 patients, none(0%) of them were single, 21(70%) of them were married and 9(30%) of them were divorced and none(0%) of them were widow.

7. Regarding the duration of illness, in the experimental group out of 30 patients, 26(86.66%) of them belongs to 2-3 years of illness, 2(6.66%) of them belongs to 3-4 years of illness and 2(6.66%) of them belong to 4-5 years of illness, whereas in the control group out of 30 patients, 17(56.66%) of them belongs to 2- 3 years of illness, 4(13.33%) of them belongs to 3-4 years of illness and 9(30%) of them belongs to 4-5 years of illness.

8. On analysis of mean score of sleep among experimental group was 26.73 and control group was 34.36 after intervention. Standard deviation among experimental group was 7.63 and control group was 8.24 and calculated t"value was 3.703 it shows improvement of quality of sleep.

9. There was no significant association between the posttest level of quality of sleep in the experimental group with their demographic variables such as age, education, type of family, occupation, monthly income, marital status. Obtained chi square value was significant at 0.05 level.

The first objective was to assess the pretest and posttest level of quality of sleep among patients with breast cancer in experimental and control group.

1. On analysis of frequency and percentage distribution of the pretest and post test level of quality of sleep among experimental group shows that, none of the patients had normal sleep, 5(16.66%) of the patients had mild sleep problem, 25(83.33%) of them had moderate sleep problem, none of them had severe sleep problem, where as in the posttest level of quality of sleep among the experimental group 13(43.33%) of the patients had normal sleep, 17(56.66%) of them had mild sleep problem, none of them had moderate and severe sleep problem.

2. On analysis of frequency and percentage distribution of pre test and posttest level of quality of sleep among control group shows that, none of the patients had normal sleep, 21(70%) of the patients had mild sleep problem, 9(30%) of them had moderate sleep problem, none of them had severe sleep problem, where as in the posttest level of quality of sleep among the control group none of the patients had normal sleep, 22(73.33%) of them had mild sleep problem, 8(26.66) of them had moderate sleep problem and no one had severe sleep problem.

The above result was supported by **Dinken P.N (2008)** conducted randomized, controlled study on effectiveness of progressive muscle relaxation on breast cancer among 40 older patients. The study indicates that older patients experienced significant improvement in the level of quality of sleep. Adult people participants in the study experienced considerable improvement in their ability to perform activities of daily living, and it will reduce stress and improve quality of sleep.

The second objective was to find out the effectiveness of progressive muscle relaxation technique on quality of sleep among patients with breast cancer in experimental and control group.

On analysis of unpaired `t' test to compare the posttest level of quality of sleep between experimental and control group was found that the `t' value was 3.703, indicating that there is significant difference in posttest level of quality of sleep between the experimental and control group at $p<0.05$ level. Hence the stated hypothesis, "the mean posttest level of quality of sleep among experimental group will be significantly higher than the mean posttest level of quality of sleep in the control group" was accepted

The above result was supported by **International cancer centre in Tata hospital on 2009.** A quasi Experimental with simple cross over design used to study the effect of progressive muscle relaxation on quality of sleep in breast cancer patients. 15 samples were selected by using purposive sampling technique. During experimental period patients received progressive muscle relaxation technique for 30 minutes per day for 7 days and in the control period patients did not received progressive muscle relaxation technique for 7 days. The instruments used for data collection were demographic data, information about breast cancer, daily record of quality of sleep and reducing stress. The data analyzed by using frequency, mean, standard deviation and ANOVA. The results of the study shown that the quality of sleep score in the experimental period after receiving progressive muscle relaxation was statistically higher than during the control period ($P<.001$). So the study revealed that progressive muscle relaxation can be used as a complementary therapy to improve quality of sleep.

The third objective was to compare the pretest and posttest level of quality of sleep among patients with breast cancer in experimental group.

On analysis of paired `t' test to compare the pretest and posttest level of quality of sleep among experimental group was found that the't' value was 8.12 indicating that there is significant difference in pretest and posttest level of quality of sleep among experimental at $p<0.05$ level. Hence the stated hypothesis, "the mean post test level of quality of sleep will be significantly higher than the mean pretest level of quality of sleep in experimental group" was accepted.

The above result was supported by Annie & Dincink (2010) conducted the effect of progressive muscle relaxation on women with breast cancer in Europe. The progressive muscle relaxation was done to the experimental group 7 times a week for 4 weeks 30 minutes each. Data analysis conducted to verify the patient having no sleep at night. After progressive muscle relaxation, the subjects in experimental shows significant improvement in quality of sleep ($F=144.66$, $P=000$). The results suggest that the progressive muscle relaxation is effective in quality of sleep.

The fourth objective was to associate the posttest level of quality of sleep among patients with breast cancer in experimental and control group with their selected demographic variables like age, marital status, education, occupation, type of family, monthly income and duration of illness etc.

On analysis of chi-square test to associate the post test level of quality of sleep with the selected demographic variables like age, education, type of family, occupation, monthly income, marital status, duration of illness, in the control group. While analyzing the statistical significance at ($P<0.05$) level it shows that there was no significant association of the post test level of quality of sleep with the selected

demographic variables at P<0.05 level except duration of illness. Hence the research hypothesis was rejected.

The above result was supported by **Lasylin S, Wilkin (2010)** conducted a quasi experimental study to assess the effect of progressive muscle relaxation on stress and quality of sleep in patients with breast cancer at the Edmund hospital in Thailand. The samples consisted of 30 inpatients (age, occupation, education, duration of illness etc) and the tool included quality of sleep and stress scales. Researchers noted a significantly reduced the level of stress and improvement of quality of sleep.

Hence, the research hypothesis (H_3) stated that "there is significant association between the level of quality of sleep among experimental and control group of breast cancer patients with selected demographic variables" was rejected.

From the above analysis and interpretations, the hypothesis (H_1), "Mean posttest level of quality of sleep among patients with breast cancer in experimental group was significantly higher than the mean posttest level of quality of sleep in control group" was accepted and the hypothesis (H_3) "There was significant association between the posttest level of quality of sleep among patients with breast cancer in experimental and control group with their selected demographic variables such as age, marital status, education, occupation, type of family, monthly income and duration of illness " was rejected.

CHAPTER VI

SUMMARY, CONCLUSION, IMPLICATION, LIMITATIONS AND RECOMMENDATIONS

This chapter deals with summary, findings, conclusion, implications, limitations and recommendations, which creates a base for evidence based practice.

SUMMARY

Sleep is a fascinating experience in the daily activity of every human being. Human spend approximately one third of their life in sleep. It undergoes considerable variation in its pattern as a person grows and matures. In early months of life, the babies spend 17 hours in every 24 hours. But when age increases the sleep gradually decreases to seven-eight hours per day. **(Valman and Mary 2012).**

Breast cancer, is by far the most frequent cancer among women, with an estimated 1,38 million new cancer cases diagnosed in 2008 (23% of all cancers) and one of the leading causes of cancer-related mortality. Just within the European Union, every 2.5 minutes a woman is diagnosed with breast cancer, and every 7.5 minutes a woman dies from the disease (3% of cancer deaths in European women is produced by breast cancer). It is estimated that about one in 12 women will develop the disease before the age of 75 years. The prevalence of breast cancer varied around the world, with the lowest prevalence in rural India **(PhiliniaM 2011).**

Breast cancer is a kind of cancer that develops from breast cells. Breast cancer usually starts off in the inner lining of milk ducts or the lobules that supply them with

milk. Malignant tumor can spread to other parts of the body. A breast cancer that started off in the lobules is known as lobular carcinoma, while one that developed from the ducts is called ductal carcinoma. **(Lamin 2011).**

A recent research showed that progressive muscle relaxation is effective in quality of sleep. More recently, progressive muscle relaxation has actually been proven to be a legitimate medical practice that aids in the relax of muscular tension, ulcers, insomnia and hypertension and even cancer. Progressive muscle relaxation has also been proven to help quality of sleep.

The study was undertaken to assess the effectiveness of progressive muscle relaxation technique on quality of sleep among patients with breast cancer in selected hospitals at Kanyakumari district.

The Objectives of the study were:

- To assess the pretest and posttest level of quality of sleep among patients with breast cancer in experimental and control group.
- To find out the effectiveness of progressive muscle relaxation technique on quality of sleep among patients with breast cancer in experimental and control group.
- To compare the pre and posttest level of quality of sleep among patients with breast cancer in experimental group.
- To associate the posttest level of quality of sleep among patients with breast cancer in experimental and control group with their selected demographic variables of the experimental and control group such as age, marital status,

education, occupation, monthly income, type of family history and duration of illness.

All Hypotheses formulated were:

H1: The mean posttest level of quality of sleep among patients with breast cancer in experimental group was significantly higher than the mean posttest level of quality of sleep in control group.

H2: The mean posttest level of breast cancer among patients with breast cancer in experimental group was significantly higher than the mean pretest level of quality of sleep in experimental group.

H3: There was significant association between the posttest level of quality of sleep among patients with breast cancer in experimental and control group with their selected demographic variables such as age, marital status, education, occupation, monthly income, type of family and duration of illness.

The assumptions of the study were:

- Sample above 40 yrs are prone to get breast cancer.
- Progressive muscle relaxation may improve quality of sleep.
- Progressive muscle relaxation may necessary for optimum physical and psychological functioning of an individual.
- Progressive muscle relaxation has no side effects.

The review of literature collected for the study provided a strong basis for the study. It provided the basis for creating conceptual frame work and formation of tool. It was categorized under three headings.

Section A: Studies related to risk factors and prevalence of breast cancer.

Section B: Studies related to the effects of therapeutic back massage on breast cancer.

Section C: Studies related to effectiveness of progressive muscle relaxation technique on sleep.

The conceptual frame work of this study was based on Modified Orlando's Deliberative Nursing Process Theory helping art of clinical nursing theory and it provided a complete frame work for achieving the central purpose of the study. The research methodology adopted for the study was quasi experimental pre test and post test control group design.

The Study was conducted in Kanyakumari medical mission hospital in Neyyoor. The total population of the hospital were 180. The Sample size for the study was 60, 30 persons were in experimental group another 30 persons were in control group. The samples were selected based on the inclusive criteria by using purposive sampling technique.

Pilot study was conducted at Kanyakumari medical mission hospital, in Kanyakumari and the findings revealed that the tool was feasible, reliable and practicable to proceed with the main study.

The content validity of the tool was established by four experts from the medical surgical nursing department, one medical expert.

The main study was conducted in Kanyakumari medical mission hospital at Neyyoor in Kanyakumari. The total sample size was sixty samples who fulfilled the inclusive criteria were allotted to experimental group (n = 30) and in control group

(n=30) by purposive sampling technique. The collected data was analyzed and interpreted based on the objectives using descriptive and inferential statistics.

There was no association between the level of quality of sleep and age, marital status, education, occupation, monthly income, type of family and duration of illness in the experimental group. Obtained chi square value was significant at 0.05 levels.

CONCLUSION

This study assessed the effectiveness of Progressive muscle relaxation technique on quality of sleep among patients with breast cancer. The study findings revealed that there was a significant association on the level of quality of sleep after application of progressive muscle relaxation technique in the experimental group. On the basis of the study, the researcher concluded that application of progressive muscle relaxation technique has a significant effect on quality of sleep. Progressive muscle relaxation technique is an effective, easy to do and potentially risk free intervention

IMPLICATION

Investigator has derived from the study the following implications that are of vital concern in the field of nursing practice, nursing education, nursing administration and nursing research.

NURSING PRACTICE

- The nurses have a vital role in providing safe and effective nursing care to enhance quality of sleep among patients with breast cancer.

- This can be facilitated by motivating the nurses to have an in depth knowledge in physiological considerations in quality of sleep.
- Develop skill in providing efficient nursing care for improving quality of sleep and teach the samples about the effectiveness of progressive muscle relaxation technique for improving quality of sleep.
- Nurses need to practice evidence based approach while giving care to the breast cancer patients.

NURSING EDUCATION

Before nurses enter into for their practice, they need to have strong foundation in terms of education. Nurse educator not only have a role to educate the student but also to educate the staff nurses in order to prepare them and update their knowledge, to enhance the application of theory in to practice. The education in the clinical area should be provided in the form of:

1. Incorporate progressive muscle relaxation technique in the curriculum of nursing with clinical experience.
2. To motivate students to follow the progressive muscle relaxation technique in improving of quality of sleep.
3. Update the knowledge of staff nurse with inservice education programs emphasizing various measures in improving of quality of sleep.
4. Make use of available studies related to breast cancer and its management.

NURSING ADMINISTRATION

1. Conduct in service education programs and continuing education programs for effective management for breast cancer patient.

2. Collaborate with governing bodies for the formulation of standard policies and protocols to emphasize nursing care for breast cancer client.
3. Provide more opportunities for nurses to attend training programs in progressive muscle relaxation technique on breast cancer and its improving of quality of sleep:
    - Conduct inservice education programs and continuing education programs on breast cancer and its improving of quality of sleep.
    - Arrange and conduct workshops, conferences, seminars on progressive muscle relaxation technique on quality of sleep.
    - Provide opportunities for nurses to attend training programs on progressive muscle relaxation technique on breast cancer and its improving of quality of sleep.

NURSING RESEARCH

1. Nurse researcher can disseminate the findings of the studies through conference, seminar and publishing in professional journals to the Medical Surgical staff.
2. Nurse researcher can encourage to conduct further researches related to progressive muscle relaxation intervention prior to other therapies..
3. The findings of the research study would help in building and strengthening the body of knowledge.
4. As a nurse researcher, promote more research on effective measures in improving of quality of sleep.

5. Evidence based nursing practice must take higher profile in order to increase the knowledge about progressive muscle relaxation intervention on breast cancer and its improvement of quality of sleep.

LIMITATION

During the period of study the limitations faced by the investigator were as follows,

1. Only limited literatures and studies were obtained from the Indian context.
2. Due to time constraints, the investigator was unable to take larger samples for the study.

RECOMMENDATIONS

Based on the findings of the present study the following recommendations are made:

1. The similar study can be conducted with large samples for better generalisation.
2. The study can be conducted to assess the knowledge and practice of nurses with regard to Progressive muscle relaxation technique for improving of quality of sleep in patients with breast cancer .
3. A comparative study can be conducted by using progressive muscle relaxation technique other therapy on improving of quality of sleep among breast cancer patients.
4. The same study can be repeated by using the true experimental design.

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APPENDIX-A

SRI K. RAMACHANDRAN NAIDU COLLEGE OF NURSING

Approved by Govt. of Tamilnadu and Indian Nursing Council / T.N.C
Affiliated to the Tamilnadu Dr. M.G.R. Medical University

K.R. Naidu Nagar - 627 753, Paruvakudi Village, Post Bag No.1, Karivalam (via)
Sankarankovil (Tk), Tirunelveli (Dt), Ph. : 04636 - 260950, Fax : 04636 - 260377.
E - Mail : srikrncon@yahoo.com Web : srikrnaiducollegeofnursing.org

To,

The Managing Director,
Kanyakumari Medical Mission Hospital,
Neyyoor,
Nagerkoil,
Kanyakumari (Dist)

Ms.Princy D.O is a bonafide student of our college studying in M.Sc (N) programme. As a partial fulfillment of the university requirement for the award of the M.Sc (N) degree, she needs to conduct research project.

Her chosen research project is as follows **"A study to assess effectiveness of Progressive muscle relaxation on quality of sleep among breast cancer patients admitted in medical ward of a selected hospitals in Kanyakumari District."**

She will abide by rules and regulation of the hospitals and adhere to the policies during her period of data collection from 01.08.2013 to 31.08.2013. Permission may kindly be granted to her for conduction of the study at your esteemed Centre.

Further details of the proposal project will be furnished by the students personally, confidentiality will be ensured in the research project.

Thanking you

Yours faithfully

Principal
Sri K. Ramachandran Naidu
College of Nursing
K.R. Naidu Nagar - 627 753. Karivalam (Via)
Sankarankovil (T.K.) Tirunelveli Dt.,

LETTER SEEKING PERMISSION FOR CONDUCTING THE STUDY

To
The Deputy Director,
Health Services,
Sankarankovil(Tk),
Tirunelveli District.

Ms. Princy.D.O, is a bonafide student of our college studying in Msc (N) programme. As a partial fulfilment of the university requirement for the award of the Msc(N) degree, She needs to conduct research project.

Her chosen research project is as follows **"A study to assess the effectiveness of progressive muscle relaxation technique among patients with breast cancer at selected hospital in Kanyakumari ".**

She will abide by the rules and regulations of the hospitals and adhere to the policies during her period of data collection. Permission may kindly be granted to her for conduction of the study at your hospital .The plan for conducting research study is from 1.8.2013 to 31.8.2013.

Further details of the proposal project will be furnished by the student personally, confidentiality will be ensured in the research project.

Thanking you

Yours faithfully,

APPENDIX B

LETTER SEEKING EXPERTS OPINION FOR CONTENT VALIDITY

From:

Ms Princy.D.O,
M.Sc Nursing IInd Year,
Sri.K.Ramachandran Naidu College of Nursing,
Sankarankovil.

To:

Subject: Seeking validation of tool and content validity

Respected Sir/ Madam,

I am IInd year of M.sc Nursing student studying at Sri K Ramachandran Naidu college of Nursing, Sankarankovil, Tamilnadu Dr.MGR Medical University working on dissertation titled, **"A STUDY TO ASSESS THE EFFECTIVENESS OF PROGRESSIVE MUSCLE RELAXATION TECHNIQUE ON QUALITY OF SLEEP AMONG PATIENTS WITH BREAST CANCER IN SELECTED HOSPITAL, KANYAKUMARI ."** The dissertation is to be submitted to the Tamilnadu Dr.M.G.R Medical University, as a partial fulfillment for the requirement of M.sc nursing degree. Hence I request you to kindly evaluate the tool items and give your valuable opinion and suggestions for improvement of this tool. I would be highly obliged and thankful to hear from you.

Thanking you in anticipation.

Yours sincerely,

(PRINCY.D.O.)

Enclosures:
Statement of the problem
Research tool
Scoring key

APPENDIX – C

LIST OF EXPERTS FOR CONTENT VALIDITY

MEDICAL EXPERT

1. **Dr.V.G.Sudhakaran** MD, DMRT
   Kanyakumari medical mission hospital,
   Neyyoor**,**
   Kanyakumari District.

NURSING EXPERTS

1. **Mrs. Jaya Thangaselvi,**
   professor,
   C.S.I. Jeyaraj Annapakium college of nursing,
   Passumalai,
   Madurai -4.

2. **Mrs. Jerline Priya,**
   Principal,
   Annammal college of nursing,
   Kuzhithurai,
   Kanyakumari dist-629 802

3. **Mrs. Sharmila rani,**
   Professor in medical surgical nursing,
   Christian College Of Nursing,
   Neyyoor, Kanyakumari dist.-629 802

4. **Mrs. Tamil Selvi,**
   Reader in medical surgical nursing,
   Bishop's College Of Nursing,
   Dharapuram, Erode dist.-638 656

APPENDIX - D

CERTIFICATE OF ENGLISH EDITING

TO WHOM SO EVER IT MAY CONCERN

This is to certify that Ms.D.O.Princy, II year M.Sc Nursing student of Sri.K.Ramachandran Naidu College of Nursing, Sankarankovil (Tk), Tirunelveli District, has done a dissertation study on **"EFFECTIVENESS OF PROGRESSIVE MUSCLE RELAXATION TECHNIQUE ON QUALITY OF SLEEP AMONG BREAST CANCER PATIENTS IN SELECTED HOSPITAL, KANYAKUMARI."**April 2014, this study was edited for English language appropriateness.

M. Sri Vidhya
Signature 12/7/13

M. SRI VIDHYA, M.A., M.Phil.,
GUEST LECTURER
DEPT. OF. ENGLISH
RANI ANNA GOVT. ARTS. COLLEGE
TIRUNELVELI - 627008.

APPENDIX - E

CERTIFICATE OF TAMIL EDITING

TO WHOM SO EVER IT MAY CONCERN

This is to certify that Ms.D.O.Princy, II year M.Sc Nursing student of Sri.K.Ramachandran Naidu College of Nursing, Sankarankovil (Tk), Tirunelveli District, has done a dissertation study on **"EFFECTIVENESS OF PROGRESSIVE MUSCLE RELAXATION TECHNIQUE ON QUALITY OF SLEEP AMONG BREAST CANCER PATIENTS IN SELECTED HOSPITAL, KANYAKUMARI."**April 2014, this study was edited for Tamil language appropriateness.

R. Chinn-Tho 12.9.13

Signature

R. CHINNATHAI, M.A.,M.Phil.,B.Ed.,
Lecturer (Tamil Dept.),
Rani Anna Govt. Arts College for Women,
TIRUNELVELI - 627 008.

APPENDIX – F

INFORMED CONSENT

Good Morning,

I, **Ms. D.O.Princy,** M.sc Nursing II Year student of Sri.K. Ramachandran Naidu College of Nursing, conducting a study **“TO ASSESS THE EFFECTIVENESS OF PROGRESSIVE MUSCLE RELAXATION TECHNIQUE ON QUALITY OF SLEEP AMONG PATIENTS WITH BREAST CANCER IN SELECTED HOSPITAL, KANYAKUMARI.** "a partial fulfillment of the requirement for the degree of M.Sc Nursing under The Tamil Nadu Dr. M.G.R Medical University. The breast cancer patients will be given thirty minutes progressive muscle relaxation 3 times in a week for ten sessions. Quality of sleep will be assessed by using groningen sleep quality scale in the fourth week after the intervention.

I assure you that information obtained will be kept confidential. So, I request you to kindly co operate with me and participate in this study by giving your frank and voluntary consent.

Thank you.

APPENDIX-G

DESCRIPTION OF TOOL

Section –A.

It consists of a structured interview schedule It had questions related to the demographic data of the patients.

Demographic variables

1) Age

a) 25-30 years

b) 31-40 years

c) 41-50 years

d) 51-60 years

e) Above 60 years

2) Education

a) Illiterate

b) Primary school education

c) High school education

d) Higher secondary school education

e) Graduate

f) Post graduate

3) Type of family

a) Nuclear

b) Joint

4) Occupation

a) Unemployed

b) Coolie

c) Private employee

d) Government employee

5) Monthly income

a) Below Rs 2000

b) Rs 2000 – 4000

c) Rs 4000 - 6000

d) Above 6000

6) Marital status

a) Single

b) Married

c) Divorced

d) Widow/ Widower

7) Duration of illness

a) 2-3 years

b) 3-4 years

c) 4-5 years

GRONINGEN SLEEP QUALITY SCALE

Section-B

This questioner is designed to assess the quality of sleep among breast cancer patients.

S.No	Items	Not at all	Some what	Moderately	Very much
1.	I had disturbed sleep last night.				
2.	I feel that I did not sleep well last night.				
3.	It took me more than half an hour to fall sleep last night.				
4.	I woke up several times last night.				
5.	I felt tired after waking up this morning.				
6.	I feel that I did not get enough sleep last night.				
7.	I got up in the middle of the night.				
8.	I feel that I did not take enough rest after waking up this morning.				
9.	I feel that I only had a couple of hours sleep last night.				
10.	I feel that I had no long sleep last night.				
11.	I did not sleep a wink last night.				
12.	I had trouble fall a sleep last night.				

13.	After I woke up, I had trouble falling sleep again.				
14.	I tossed and turned all night last night.				
15.	I did not get more than 5 hours sleep last night.				
16.	I had bad dreams last night.				
17.	I felt rattled during last night.				
18.	I felt tension in the morning.				
19.	I feel that I nerved in the morning.				
20.	I had inadequate sleep in the last night.				

Scoring key:

Not at all – 1

Some what – 2

Moderately – 3

Very much - 4

Scoring interpretation:

Score	Description
20	Normal
21-40	Mild sleep problem
41-60	Moderate sleep problem
61-80	Severe sleep problem

gphpt[- m
thH;tpay; tpgu';fs;
ftdpf;f : fPH; bfhLf;fg;gl;Ls;s tpdhf;fSf;F
rhpahd gjpiy Fwpg;gpLf.

1. taJ

    m) 25 - 30 taJ
    M) 31 - 40 taJ
    ,) 41 - 50 taJ
    <) 51 - 60 taJ

2. fy;tp epiy

    m) fy;tp mwptw;nwhh;
    M) Muk;gepiyf; fy;tp
    ,) cah;epiyf; fy;tp
    <) nky;epiyf; fy;tp
    c) gl;ljhhp
    C) KJepiy gl;ljhhp

3. FLk;gj;jpd; tif

    m) jdpf;FLk;gk;
    M) Tl;Lf;FLk;gk;

4. bjhHpy;

    m) ntiy tha;g;gpd;ik
    M) Typj; bjhHpy;
    ,) jdpahh; mYtyh;
    <) muR mYtyh;

5. FLk;g khj tUkhdk;

    m) %. 2000w;Ff; fPH;
    M) %. 2000 - 4000
    ,) %. 4001 - 6,000
    <) %. 6000w;F nky;

6. jpUkz epiy

    m) jdpikg;gLj;jg;gl;lth;
    M) jpUkzkhdth;
    ,) tpthfuj;jhdth;
    <) tpjit

7. neha;tha;g;gl;l fhyk;

    m) 2 - 3 tUl';fs;
    M) 3 - 4 tUl';fs;
    ,) 4 - 5 tUl';fs;

gphpt[- M

Fnuhdp';fs; J]f;fj;jpd; msit kjpg;gpLk; tpdhj;jhs;

t. vz;.	gFjpfs;	,y;ynt ,y;iy	Xust[	mjpf khf	kpf mjpfkhf
1.	ehd; new;W ,ut[rhpahf J]';ftpy;iy				
2.	ehd; new;W ,ut[rhpahf J]';ftpy;iy vd;W czh;fpnwd;				
3.	new;W ,ut[miu kzp neuj;jpw;Fg; gpwFjhd; J]';fpndd;				
4.	ehd; new;W ,ut[gyjlit J]f;fj;jpy; ,Ue;J vGe;njd;				
5.	,d;W fhiy J]';fp vGe;j gpwF nrhh;thf czh;e;njd;				
6.	ehd; new;W ,ut[njitahd mst[J]';ftpy;iy				
7.	ghjp J]f;fj;jpy; vGe;jpUe;njd;				
8.	,d;W fhiy J]';fp vGk;gpa gpwF ehd; rhpahd mst[Xa;t[vLf;ftpy;iy vd;W epidf;fpnwd;				
9.	new;W ,ut[KGtjhf 2 kzp neuk; kl;Lnk J]';fpajhf czh;fpnwd;				
10.	new;W ,ut[vdf;F J]f;fnk ,y;iy vd;W czh;fpnwd;				
11.	new;W ,ut[ehd; xU JspTl J]';ftpy;iy				
12.	new;W ,ut[J]';f vdf;F epiwa neuk; gpoj;jJ				
13.	ghjp J]f;fj;jpy; tpHpg;g[te;jgpd; J]';f epiwa neuk; gpoj;jJ				
14.	new;W ,ut[jpUk;gp jpUk;gp g[uz;L bfhz;nl ,Ue;njd;				
15.	new;W ,ut[ehd; 5 kzp neuj;jpw;F nky; epk;kjpahf J]';ftpy;iy				
16.	new;W ,ut[vdf;F bfl;l fdt[fs; te;jd.				
17.	new;W ,ut[cUl;lg;gl;lJ nghy czh;e;njd;.				

18.	J]';fp vGk;gp gpd; kdk; mikjpapd;wp ,Ue;jJ.				
19.	,d;W fhiy ehd; glglg;ig czh;e;njd;.				
20.	bkhj;jj;jpy; ehd; new;W ,ut[ed;whf J]';ftpy;iy.				

APPENDIX - H

STEPS OF INTERVENTION

Progressive muscle relaxation technique is a great technique for reducing overall body tension, as one practices tensing and relaxing all the muscle groups of shoulder, arms, back, abdomen, chest, buttocks, calves and it is important technique to improve sleep.

- Consent was obtained from each patients and reassurance was provided that the collected data would be kept confidential.
- Explain the procedure and make a patient to lie in comfortable position on a firm comfortable surface on the bed. Taught that progressive muscle relaxation techniques and its effect on breast cancer.
- Ask the patient to make fist with right hand.
- Ask the patient to bring right forearm up to shoulder.
- Then do the left hand and forearm and upper arm.
- Tell the patient to raise the eyebrows as high as they will go.
- Advice the patient to squeeze the eyes tight shut.
- Then ask the patient to open the mouth as wide as possible.
- Ask the patient to pull the face forward and then pull the head back slowly.
- Then advice the patient to bring the shoulder upwards to ears.
- Ask the patient to push the shoulder blade back trying to almost touch them together.
- Advice the patient to take a deep breath, and then fill the lungs and chest with air.

- Ask the patient to squeeze the buttocks muscles.
- Then tell the patient to tighten the right thigh.
- Tell the patient to pull the toes towards to stretch the calf muscles.
- Ask the patient to curl the toes downwards.
- Repeat as for right upper and lower leg, and repeat as right foot and also do the left upper and lower and left foot.

After systematically tightening and relaxation all the muscle groups of shoulder, arms, back, abdomen, chest, buttocks, calves in the body, one should feel relaxed and calm. The technique will be given for 30 minutes every night continuous for 7 days

1. Ask the patient to make the fist with right hand

2. **Ask the patient to bring right forearm up to shoulder.**

3. Then do the left forearm upto up to shoulder.

4. Tell the patient to raise the eyebrows as high as possible.

5. Advice the patient to squeeze the eyes tight shut.

6. Then ask the patient to open the mouth as wide as possible.

7. Ask the patient to pull the face forward and then pull the head back slowly.

. **8. Then advise the patient to bring the shoulder upwards to ears.**

9. Ask the patient to push the shoulder blade back trying to almost touch them together.

10. Advice the patient to take a deep breath and then fill the lungs and chest with air.

11. Ask the patient to squeeze the buttocks muscles.

12. Then tell the patient to tighten the right thigh.

Pic. 6: Traci Copeland, Wilhelmina Models

13. Tell the patient to tighten the left thigh.

14. Tell the patient to pull the toes towards to stretch the calf muscles.

15. Ask the patient to curl the toes downwards.